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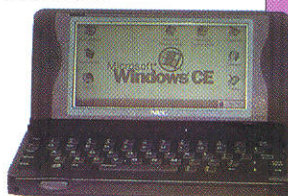
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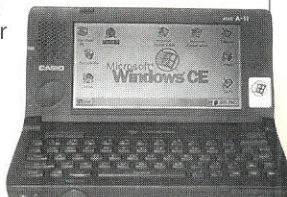


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FALL 1997

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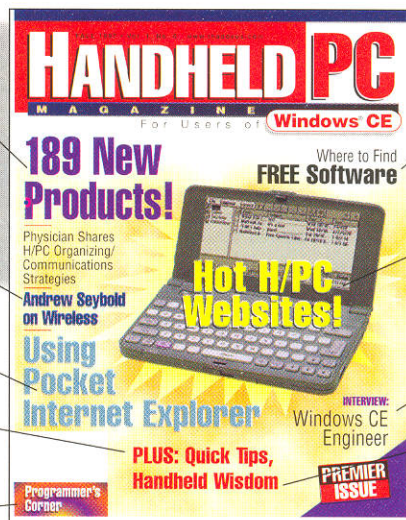
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Exclusively for Windows CE® Users  
Premier Issue, Summer/Fall, 1997

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## From The Publisher

Greetings and welcome to the world of Windows CE! Whether you are new to handheld computing or have used pocket-sized computing devices for years, we will do our best to serve you.

In the process of publishing product-specific magazines for 12 years, we've developed a unique philosophy. *We realize that you, the every-day user of the H/PC, are the expert, and therefore you have the most to contribute to fellow users.* In your daily activities you discover unique and powerful ways to use the Windows CE built-in software and add-on products.

Our job is to leverage on your expertise: to collect information via newsgroups, online services, Websites, and from your submitted tips, reviews, and H/PC profiles. Whether you are an end-user, a third party product vendor, or an H/PC manufacturer, we invite you to submit your tips and articles. The one-word criteria we use to measure submissions is "practical." We consider whether a large segment of our readership would find the information useful and unbiased. We select and then edit the most universally helpful material and publish it in *Handheld PC Magazine*. We invite you to send tips or article proposals by e-mail to [editor@thaddeus.com](mailto:editor@thaddeus.com). You can check our Website or e-mail us for article guidelines.

Glance through the issue to understand what we mean. You'll find all sorts of useful ideas in the profiles by physician, Don Vine; data processing manager, James Kendrick; and computer retailer, Craig Peacock. Then David Bialer of MobileSoft gives a nice overview of Windows CE based software; beta tester Don Hegert reviews the H/PC version of pcANYWHERE for remote desktop PC viewing; and David Shier of Shier Systems describes H/PC battery alternatives. These articles sandwich in descriptions of well-over one hundred products that work with your Windows CE-based H/PC.

Then for a deeper understanding of the history and future of Windows CE, read three insightful interviews from key Windows CE players: Microsoft (Robert O'Hara), Casio (Daryl Scott), and Hewlett-Packard (Kheng-Joo Khaw).

We think you'll appreciate our expert columnists, also drawn from the H/PC user community. In each issue, read the thoughts of wireless computing pioneer, Andrew Seybold, and pen-computing guru, John Jerney. In addition, anyone interested in corporate use of H/PCs will want to follow the column by Carl Merkle, an H/PC consultant and former Senior Manager at Ernst and Young. Developers and programmers will appreciate the Programmer's Corner, by shareware author and former HP software engineer, Everett Kaser.

You'll also notice our regular Quick Tips and Tricks and Handheld Wisdom sections. Handheld Wisdom discusses how the Handheld PC can be used to enhance the quality of life.

Finally, we will support your specific H/PC. To learn about tips, tricks, gotchas, as well as new accessories and upgrades from your H/PC manufacturer, check this section out. In this first issue in the "Your Handheld PC" section we describe each H/PC and their accessories.

Like this publication, our Website, [www.thaddeus.com](http://www.thaddeus.com), will be designed with "useful" in mind. There you will find the freeware and shareware mentioned in each issue, editorial content, and many links to Windows CE-related sites. Alternatively, you can subscribe to our *PowerCD: The Handheld PC Magazine Supplement*. The PowerCD contains the freeware and shareware mentioned in each issue, advertiser Websites, and the text of the current issue readable in your Web browser.

We hope you enjoy this premier issue. *Regular bimonthly publishing begins December 1997.* Meanwhile, expect to receive your *Handheld PC Magazine* subscription bonuses this Fall. We look forward to receiving your contributions and suggestions at [editor@thaddeus.com](mailto:editor@thaddeus.com)



Fall 1997—Premier Issue (Vol. 1, No. 0)

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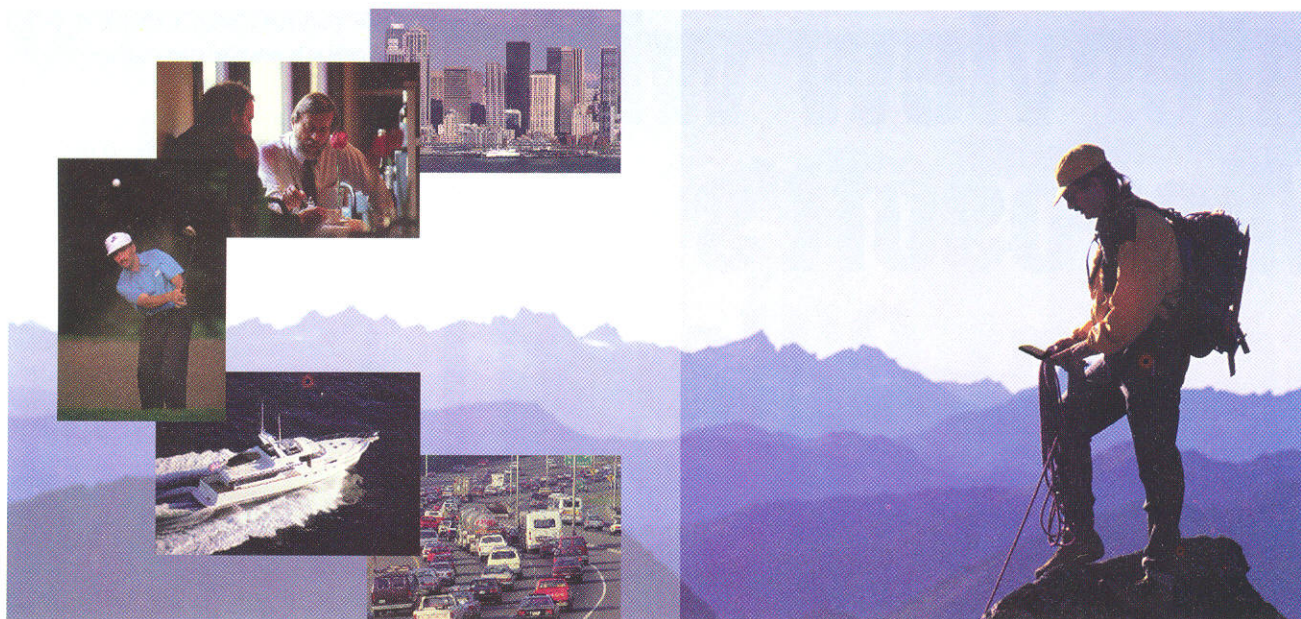
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# Great News for Windows® CE and Newton® Users!



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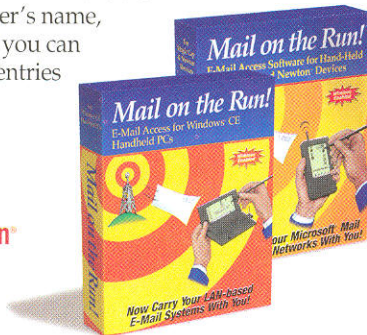
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# Interview with Microsoft's Robert O'Hara

*The Development Manager for the Windows CE PIMs, e-mail applications, and Entertainment Pack talks about the birth and growth of Windows CE.*

*Questions asked by Rich Hall, Executive Editor of Handheld PC Magazine*

*Q: How were you involved with the development of Windows CE?*

A: I was involved near the very beginning of the predecessor project to Windows CE, "WinPad." WinPad started in the summer of 1992, I joined Microsoft to work on it in December of that year. WinPad was going to be a machine more like a Newton (portrait mode, handwriting recognition, and no keyboard). It was killed in the fall of 1994, and from its ashes the Windows CE effort began.

I managed the group that wrote the PIM (Calendar, Contacts, and Tasks) and several other applications and components. Personally, I coded the Calculator, Help, and ported the Solitaire game from Windows 95 to Windows CE.

I also created the Microsoft Entertainment Pack for Windows CE, and led the team that produced it (see product description, page 20). This program, featuring ten games for your Handheld PC, is Microsoft's first retail product for Windows CE.

Moving forward, I also have responsibility for the messaging (e-

mail) and wireless applications for Windows CE.

*Q: What was it like working on the Windows CE development team?*

A: I've been working in the software industry since 1974. (Which makes me the "old man" of this team.) I have to say that this is one of the very best groups I have ever been involved with. The people here are very motivated, and they work very hard. In a word, working on Windows CE has been "intense." Many weekends and evenings were spent here by many people to get

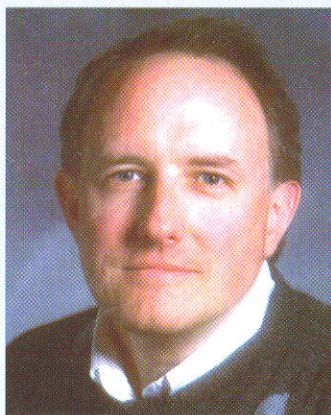
the product out. I think it is amazing that we shipped the product in less than two years, when we started from scratch.

An interesting anecdote is how Solitaire came to be in the product. I started porting it in late July of 1995, and had it essentially complete within a couple of weeks. (It would take far less time today, but at that time we did not have the mature development tools of the Software Developers' Kit.) At a project review in August, I got it into the build, and just told people to try it out. Everyone loved it, and from that point forward it was part of the "official" product. By the way, if you want to see who helped make Windows CE, in Solitaire, get the Ace of Hearts on the top row, then hold down (Alt) and tap the Ace.

When we celebrated shipping the ROM image to the manufacturers, I rode my motorcycle through the hallways to let people know we were celebrating. Motorcycles seem much louder in an office than they do outside, by the way.

*Q: When was Windows CE "born?"*

A: I mentioned WinPad above. Another project, "Pulsar," was underway at the same time. Pulsar was "a pager on steroids." It was to be a handheld device, with information content delivered wirelessly. But repeated focus groups convinced Microsoft that no one wanted it.



## ABOUT THE AUTHOR

Robert O'Hara is Development Manager in the Microsoft Mobile Electronics Product Unit. His team is responsible for the PIM and e-mail applications for Windows CE. The team also produced the Microsoft Entertainment Pack for Windows CE. Robert's personal contribution was to port Solitaire from Windows 95 to Windows CE. He has participated in the design of Windows CE and its applications since the project's inception. He is also the author of *Introducing Windows CE and the Handheld PC*, available through Microsoft Press. On weekends in the winter Robert is a ski instructor at a nearby resort, in the summer he tries to ride his motorcycle as much as he can. He lives with his family in Redmond, WA, near the Microsoft campus.





Robert O'Hara (right, on motorcycle) and members of Windows CE development team celebrate the completion of Windows CE.

In the fall of 1994, after both WinPad and Pulsar were reviewed by senior Microsoft management, it was decided to combine the two groups into a single effort which would work to build a mobile computing product. The new project, christened "Pegasus," inherited the WinPad vision: build a mobile device that would be a useful companion to a Windows desktop computer. None of the WinPad software code was carried forward, but the WinPad design continued to influence Pegasus. The Pulsar team had developed a lightweight Win32 subset operating system kernel that ran on a RISC processor. This work continued uninterrupted during the reorganization, and grew into the Windows CE operating system. Through the winter and early spring of 1995 the Windows CE team sorted itself out and developed a product design.

**Q:** How much did existing handheld platforms influence its design and development?

**A:** They were a strong influence. We looked at the three most successful handhelds: the HP 200LX, the Psion 3a, and the Sharp Zaurus. They were the target machines, in that they were reasonably successful in the market, and therefore represent-

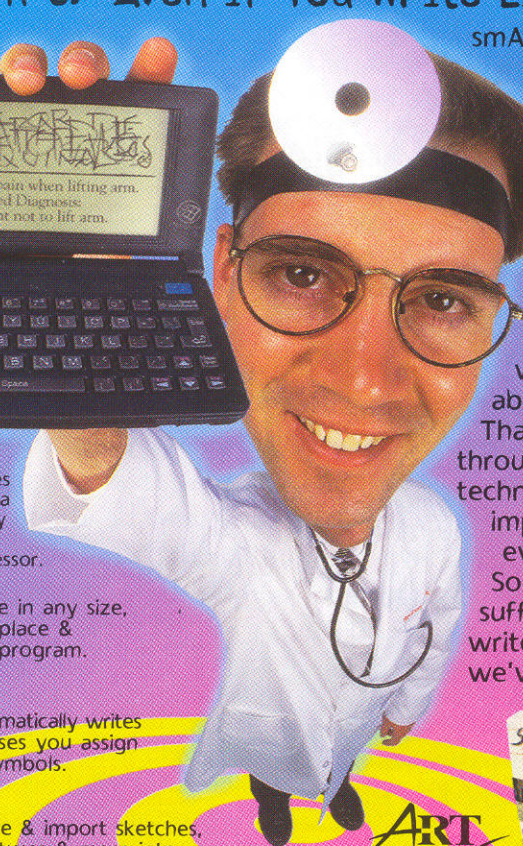
ed something that people found useful and were willing to pay for. If you look at any of the Handheld PCs you can see the strong resemblance to these machines: Clamshell design with keyboard - no hand-

writing recognition, size, weight, no backlighting (at that time), instant on, battery life in weeks, support for communications, connectivity to the desktop, third-party applications, priced around \$500.

We also studied the machines that failed (or were not rousing successes at that time): PenPoint, Momena, Magic Cap, Newton, and tried to learn from them. Overall, we took a customer- and market-centered approach. We set about to create a pragmatic product that leveraged the largest body of third-party developers and installed base of PCs: the Windows community. We didn't set out to create a "revolutionary" product -- just one that someone using Windows today would find useful.

We took those good ideas, and added some of our own: no-brainer sync with the desktop (this was one

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of WinPad's key ideas) and strong affinity to Windows, both from the User Interface and the programmer's APIs.

*Q: The Windows CE handhelds are positioned as "PC Companions." What was the thinking behind this decision?*

A: While many people will use a Handheld PC as their only computer, we believe far more will use it to carry their critical data with them. And that data tends to live on the corporate LAN, accessed through their desktop or laptop PC running Windows. This is part of Bill Gates' "Information At Your Fingertips" vision, something he began talking about in 1990. We focused on the Windows companionship because we understand Windows and what people find useful there. We wanted to work from areas we knew (Windows) to areas in which we were newcomers (handheld computers).

I believe that as Handheld PCs grow in capabilities, with better screens and more memory, more and more people will find they don't need the desktop machine. Certainly we are working on improving the connectivity of Windows CE to make that as easy as possible.

*Q: Office 97 came out recently and the press is talking about Windows 97. Connectivity and synchronization and a similar user interface are Windows CE's most important selling points. Originally Windows CE worked with Schedule Plus rather than Office 97's Outlook. How will Microsoft be able to keep the Windows CE operating system up to date without a long lag time?*

A: We have an update to the H/PC Explorer available on our Web site. This version fully supports Outlook. For the longer term, we are now working much more closely with the Outlook team, with the Exchange team, and with the Windows 95 team to ensure we

track developments as closely as possible. There will always be a little lag, as our product cycles are not in sync. For most people, I don't think this will be a big problem.

*Q: What do you like best about Windows CE? What is its most useful feature?*

A: There is not really one feature. Rather, it is how easily I can keep information with me that I need while I'm away from my desk. I often download the e-mail I don't get to during the day and read it at home in the evening, responding as appropriate. Then when I connect in the morning I send out all the mail I've answered. I do the same with reports or specifications I need to review: I download them to a PC memory card, then read them in Pocket Word on my Handheld PC. I

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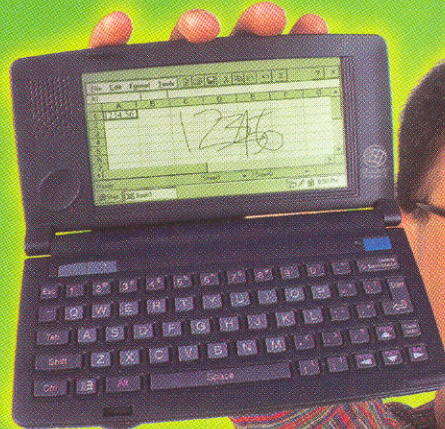
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I really enjoy the games of the

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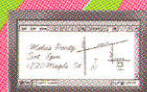
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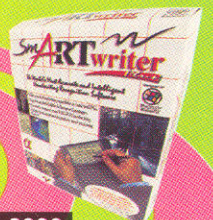
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Entertainment Pack (see page 20). I've started playing chess while on airplanes (or waiting for them at the gate). It is much more comfortable to sit back and hold a Handheld PC than to work at a laptop in a cramped coach seat. I recently borrowed a book on chess from the library so that I can get better at it.

The other thing is that I've started using wireless e-mail. When you are traveling this is really great. At Microsoft we live on e-mail, so being able to get it wirelessly is like getting a cell phone for the first time. I think wireless e-mail and Handheld PCs are going to be a big hit this year.

Of course, these are things that readers of your sister publication (*The HP Palmtop Paper*) have been doing for years with devices like the HP 200 LX. The difference for me is that it has never been this easy to move my data between my Windows-based desktop and Handheld PCs.

[Thaddeus Computing also publishes *The HP Palmtop Paper*, an HP 200LX support publication.]

**Q:** Microsoft has a wide variety of desktop software. Some of this has been shrunk down/adapted to the H/PC platform and some has not. One thing that seems to be lacking is a database. Why was this seemingly important feature left out and will it be in later versions?

**A:** Yes, there are several applications "missing" from the first version of the Handheld PC. Along with Access, Power Point has been frequently requested. Why were they left out? It's the usual answer, which is also the truth: we did not have enough time and people to get them done for the first version. This is, of course, true for every project. You never get all the features you want into whatever version you are working on. And of course, in hindsight, the missing feature can be considered by many to be "critical."

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**Q:** What is its most useful, but likely to be overlooked, feature?

**A:** If you have Microsoft Exchange on your desktop, it is the Inbox Transfer feature. This lets you download mail from Exchange to your Handheld PC, work on it there (read it, reply to messages, forward them, compose new messages), then upload and send everything you did. You don't need a modem, you don't need a remote e-mail account. Now, before you go to a boring meeting you can fill your Handheld PC with e-mail, and read that instead of doodling.

**Q:** What was the most difficult challenge you had to overcome in developing Windows CE?

**A:** There were two key challenges. The first was within the group, and that was reaching agreement on a design for the user interface. When we decided to go with the Windows 95 user interface (UI) in the early spring of 1995, it was a watershed decision. Before then there had been major disagreement within the team as to how the UI should look; after that we were just working out the details on how to best adapt the



Windows 95 UI to the small screen of a Handheld PC. It was not an easy decision to make, but in hindsight, it was a decision crucial to our success.

The second challenge came from outside of the group, and it is one that we continue to face. This challenge is to overcome the skepticism of the very idea of a handheld computer. Something under one million handheld computers were sold worldwide last year. We, and by this I mean everyone in the handheld computer industry, won't be regarded as a real success unless we can grow that number to several million per year. You can be sure that we on the Windows CE team will work very hard to grow that number.

Of course, the current challenge is to get people to stop playing games during meetings.

*Q: Since the Handheld PC is positioned as a Windows 95 companion, why is the Software Developers Kit (SDK) available only to Windows NT 4.0 users, and will future SDK's allow use on a Windows 95 machine?*

A: Windows CE is a Unicode system. That is, it uses two bytes to represent each character in the alphabet. This greatly facilitates the creation of versions for the non-Roman alphabets, such as Japanese, Korean, and Chinese. Windows NT is also Unicode, but Windows 95 is not. That is why the SDK only works on NT. Actually, it does work on Windows 95, but you can't use the database calls there. We are exploring ways to make the SDK work on Windows 95.

*Q: With all of the feature-rich Microsoft applications available to choose from, how did the team decide on the ones to include on the H/PC?*

A: Again, we looked at the existing handheld computers as a starting point. Thus we included a PIM (Calendar, Contacts, Tasks), a clock and a calculator. Then a word processor (Pocket Word) and

spreadsheet (Pocket Excel). Because the Handheld PCs do not have color screens, we decided not to include Power Point. We wanted to include a simple database or list manager, but were unable to come up with a design that worked well with the desktop databases, so we dropped that. Initially we did not include an e-mail client, but further market research during the latter half of 1995 convinced us this was needed, so we added the Inbox. We also ranked a list of "future features" in the research that we conducted during the summer of 1995. Automap Streets came out on top. We were able to help the Streets team justify the resources that were needed to create Pocket Automap Streets.

*Q: How long was the development process?*

A: Twenty-one months. We started


in December of 1994, and shipped the ROM images to the manufacturers in September of 1996.

*Q: The Handheld PCs are designed to be ROM upgradeable. What new things can we expect to be added to Windows CE?*

A: The truth is we don't yet know what new applications will be in the next version. We've received a lot of feedback from Handheld PC users, and we are working to add those features to the product. I suspect that our list of candidate changes would match most users' lists. As the Windows desktop user interface evolves and expands, we will continue to adapt it to the smaller form factor of the Handheld PC.

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- Add a calendar to your handheld.

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Capture your financial transactions on the road. Pocket Finance lets you easily enter checks, ATM, credit, and debit, and then upload them to MS Money or Quicken. Supports multiple accounts, category pop-ups that remember your entries, auto check numbering and more.

- Capture your financial transactions on the road.
- Supports multiple accounts, category pop-ups that remember your entries, auto check numbering and more.
- Supports multiple accounts, category pop-ups that remember your entries, auto check numbering and more.

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- This powerful form-based data collection solution allows you to capture information via pen and keyboard.
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- Field types include text, notes, number, pop-up menus, radio buttons, and checkboxes.

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- Powerful productivity add-on for your Windows CE device.
- You'll now be able to search by filename, date, or text with Comed FastFind Pro, enter a new task/shortcut with ease, reduce typing through the use of quick access aliases, and launch any file or application from a button in the status area.

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- Equip your HPC with a powerful business tool.
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**Q:** What's the future of Windows CE (what platforms will it be on, how will it change and improve)? Windows CE is still a new baby. What is this child going to look like five years from now?

**A:** Some of what will happen is already pretty obvious; various press announcements have been made. Windows CE is being ported to a variety of processors; it has been licensed to many OEMs. Thus in the coming years you will see it (or sometimes not see it) in a variety of products that feature embedded computers. For example, the Windows CE-based Navitel

TouchPhone is a desktop phone with a 640x480 screen that provides e-mail and Internet access.

I'll speak personally here, although I believe what I say is shared by much of the team. My dream is that handheld devices running Windows CE will become as common as cellular telephones are today. Bill Gates has spoken of the "Wallet PC" in several speeches. Well, the handheld PC of today is the first small step towards the Wallet PC. I think that the continued shrinking of electronics, the growth of worldwide communications and commerce over the Internet, and the

emerging wireless and e-cash infrastructures will make a small, communicating handheld device commonplace within five years.

My fear is to be on an airplane then, when the nice grandma next to me holds up her handheld computer and says, "Would you like to see pictures of my grandchildren? I have over 1,000 of them here!"

**Q:** Could you tell us a little about the Windows CE book you've written?

**A:** The book is titled "Introducing Microsoft Windows CE for the Handheld PC," and will be published by Microsoft Press. It will be in most bookstores this May. You'll find it along with the other computer books. The book is aimed at the general reader, not at programmers. It introduces Windows CE and Handheld PCs, then gives a detailed tour of all of the applications. There are a lot of tips and tricks that both novices and power users will find useful. If you haven't purchased a Handheld PC, you might buy the book first to assist you in evaluating it. The neatest information in the book? All of the "Easter Eggs" in the product are described, including how to cheat at Solitaire. You can order the book direct from the Microsoft Web page (see address below).

## "Introducing Microsoft Windows CE for the Handheld PC"

This book is aimed at the general reader, not at programmers. It introduces Windows CE and Handheld PCs, then gives a detailed tour of all of the applications. The book includes a lot of tips and tricks that both novices and power users. The book also describes all of the "Easter Eggs" in the product (hidden features and other surprises not described in the documentation).

The book is available at your local computer bookstore or directly from the Microsoft Web page at: [www.mspress.microsoft.com](http://www.mspress.microsoft.com).





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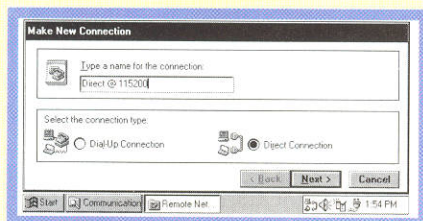
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# Quick Tips & Handheld PC Tricks

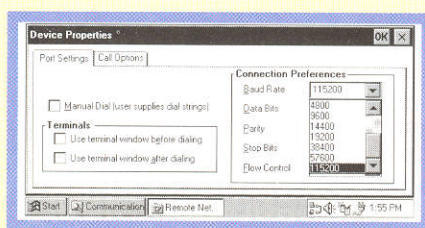
## Speed up Transfer Rate between Desktop and H/PC

When you first connect your H/PC with your Desktop PC using HPC Explorer, the default transfer rate is set at 19,200 baud. If your Desktop PC has a fast serial port, as do most newer machines, you can increase this baud rate and transfer speed. To do this on your H/PC, tap Start, Programs, double tap the Communications Folder, double tap Remote Networking and double tap Make New Connection. Next type in a name for the connection, I suggest using Direct @ 115200, and make sure the Direct Connection radio button is highlighted and tap on Next (see screen below).



Direct Connection button highlighted in Make New Connection dialog box.

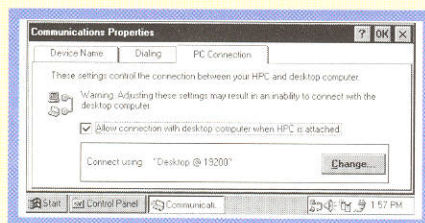
This takes you to the Make New Direct Connection dialog box where you select the device on the H/PC you want to use, COM1 (Serial Port) or the IR (Infrared) port, and then tap on Configure. This will take you to the Device Properties page where you will want to tap on the Down Arrow next to the Baud Rate and select 115200 from the drop down menu (see



Device properties screen lets you select Terminals, Connection Preferences, and more.

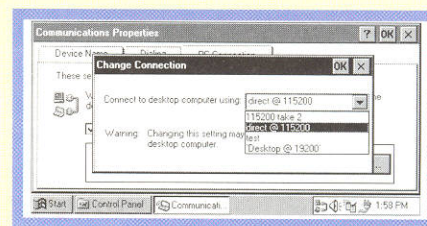
screen, above).

Tap on OK in the upper right section of the screen and then tap on the Finish button. You have now created a new direct connection icon in the Communications Folder. To use this connection in the HPC Explorer, tap Start, Settings, double tap Communications and select the PC Connection tab. At the bottom of the screen you are shown which connection you are currently using, by default this will have "Desktop @ 19200" (see screen below).



In the PC Connection tab of the Communications Properties dialog box, the connection you are currently using is displayed in the bottom box.

Tap on Change and the Change Connection screen will come up.



The Change Connection dialog box lets you select the new connection you have just defined.

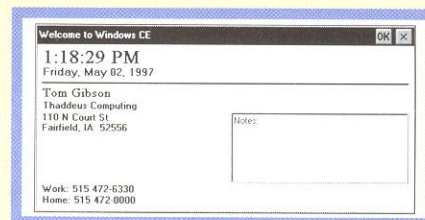
Select the connection we just created by tapping on the Down Arrow, selecting "Direct @ 115200" and tap OK (see above screen). Finally tap OK on the Communication Properties screen.

Now when you connect to your desktop using HPC Explorer, your HPC will connect at 115200 baud as opposed to 19200 baud.

Tom Gibson  
Technical Editor  
Handheld PC Magazine

## Owner Identification screen a bother?

The Handheld PC is set to automatically suspend operation after three minutes to conserve power. This suspend time can be adjusted as described above. Every time the H/PC powers down, or you turn it off, it comes back to the owner identification screen when you press on.



Whenever you press ON, the HPC opens up at the owner identification screen.

The H/PC is set up to do this to increase the likelihood that you'll get your H/PC back if you accidentally leave it somewhere. The idea is that one of the first things the person with an electronic device is to press the ON button to see what it





# The drought is over.

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does. Hopefully, the person is honest enough so that when your name and phone number appear, he or she will give you a call. You might even put "If found, call <phone number> for a reward!" to encourage honesty.

I have to admit that I found the Owner Identification screen a bit of a bother. I have my Handheld PC set to auto-suspend operation after one minute to conserve power. My H/PC auto-suspends a lot, and I got tired of having to tap on the X box in the upper right corner to get rid of the Owner Identification screen.

#### DISABLE OWNER ID SCREEN.

My solution was to disable the Owner ID screen. I tapped on Start and then Settings to go to the Control Panel. Then I double-tapped on Owner to go to the Owner Properties screen.

At the right of the screen are the words, "At Power On." Tap on the box below these words to make sure that the check mark is gone — the box should be empty. Then tap twice on the Notes tab at the top of the page to go to the Notes screen. Make sure that the box towards the bottom of the screen, titled "Display Owner Notes at Power On," is also empty. Then tap on OK.

Whenever you press ON, you'll now go straight to the last screen you were in.

This disables Owner ID, and a person finding your lost handheld PC won't get a nice message encouraging them to return it. To overcome that limitation, you could put a small nameplate on your H/PC, or tape a business card to the bottom of it.

Rich Hall  
Editor

*Handheld PC Magazine*

### Activate Caps Lock by pressing both Shift keys

Caps Lock (or Shift Lock) feature sets your Handheld PC up to type upper case letters and the shifted

value of the other keys. Activate Caps Lock by pressing both Shift keys at the same time. When Caps Lock is on, an (A) appears on the status bar at the bottom of the screen, on the right-hand side.

With Caps Lock on, pressing the Shift key lets you type lower case letters. Deactivate Caps Lock by pressing both Shift keys again.

Rich Hall  
Editor

*Thaddeus Computing*

### Closing an application with (and without) saving changes

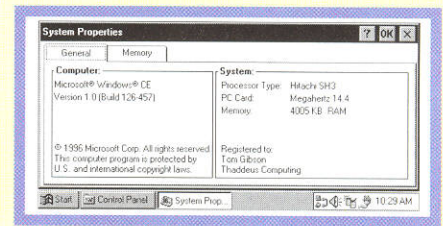
The Windows CE applications and control utilities provide an X button in the upper right corner of the screen. Tap on this button and you exit the application without saving the changes you made to the document or configuration settings. Tapping on the OK button exits the program and saves changes. If there is no OK button and you tap on the X button, Windows CE will ask you if you want to save changes. If there is an OK button and you tap on X, you exit without saving changes — no warning is given!

### How much free storage space do I have on my Handheld PC?

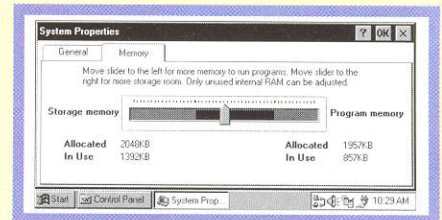
A universal truth concerning any computer is that the file storage area will fill up at least twice as fast as you think it will. This problem is compounded on the Handheld PC, where the internal memory is as low as 2 Mb.

To see how much storage space you have available, tap on Start and then Settings to go to the Control Panel. Then tap twice on the Systems icon to display the System Properties screen (see first screen top of this column).

The screen should open to the General tab, displaying information, including the operating system on



System Properties General information screen displays information of the Handheld PC, including the operating system, processor type, and amount of internal memory.



System Properties Memory screen displays the amount of RAM memory, how it is divided between file storage and program use, and the amount of each in use at that time.

the left and the processor type and amount of total internal memory. Tap on the Memory tab at the top of the screen and you'll see the second screen at the top of this column.

The bar in the middle of the screen shows you how you have partitioned the total memory — how much is available for running programs and how much for storing data. Tap on either side of the bar's pointer to allocate more memory for either programs or file storage.

Below the bar you are shown the specific number of kilobytes (Kb) allocated and in use. The numbers to the lower left refer to storage memory and the numbers to the right program memory.

Note: There is currently no direct way to determine the amount of file storage space remaining on a PC memory card inserted in the H/PC. You have to remove it, insert it in a laptop or desktop PC card reader, and use the desktop's file manager.

Rich Hall  
Editor

*Thaddeus Computing*



# Two Reasons Why Handheld Computing is Catching On

People call them "the CE add-ons you can't do without," QuickNotes™ and Jot™

*Two innovative products from Communication Intelligence Corporation, the leader in pen computing software.*



**QuickNotes**

QuickNotes™ is an application which lets you do what you do most while on the go — write notes. But rather than writing on scraps of paper, QuickNotes allows you to write notes quickly and easily on your CE device. Instead of notes getting lost and disorganized, QuickNotes automatically sorts your notes in chronological order. And, since this application stores notes in a highly compressed format, you can do the unthinkable, store hundreds of graphics-rich notes while still leaving plenty of room for data.

Jot™ is a software utility which makes text entry easier on your CE device. Let's face it, when you're using your mobile computing device, you are not typically sitting at your desk. And while QWERTY keyboards may be the standard, they were designed for two-handed entry. When you are on the move and holding your CE device in one hand, typing is hardly efficient.



Jot allows you to enter text in all CE applications by writing anywhere on the screen. Jot allows you to write quickly and naturally without training and without learning a new alphabet. Jot also recognizes characters as quickly as you can write them, so it won't slow you down. And, since Jot only requires about 80K bytes of memory, there's still plenty of room to run applications and store critical data.



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# First Wave of Windows CE Software Hits the Market

By David Bialer

Your handheld PC comes with a nice array of built-in and bundled software. But for many people, it only provides an 80% solution—lacking some of the familiar desktop tools like a spell checker, or a "pocket" version of a favorite application. Luckily, the Handheld PC (H/PC), much like its desktop cousin, is expandable. You can add third party software that meet your personal needs.

There is already a wealth of software titles now available for Handheld PCs, covering a wide range of applications and solutions. Below is an overview of some of these.

## Conversion Software

While people who use Microsoft Schedule+ 7.0a or Outlook will be able to easily synchronize their contacts, schedule and tasks lists, those who use other PIMs and contact managers will want to get *IntelliSync for Windows CE* by Puma Technology. *IntelliSync for Windows CE* provides automatic, direct synchronization with Microsoft Outlook 1.0, Microsoft Schedule+ (for Windows 95, 7.0 and 7.0a), Microsoft Exchange Address Book, Lotus Organizer 2.1 and 97, Internet Sidekick, Sidekick for Windows, NetManage ECCO, DayTimer

Organizer, Goldmine 3.0, and Act! 3.03. Another real useful conversion application is *Desktop To Go* by Dataviz. *Desktop To Go* gives you a way to convert your WordPerfect, MS Works word processor and spreadsheet, and Ami Pro, Lotus 1-2-3, and Quattro Pro documents to and from your H/PC. It currently also supports one-way conversion for some popular PIMs, and will soon be adding synchronization capabilities.

## Handwriting Recognition

Your Handheld PC comes with a stylus and touch sensitive screen, yet does not have handwriting recognition software built-in. Several prominent and experienced third-party developers have already come out with solutions that fill this gap. *SmARTwriter* from Advanced Recognition Technologies (ART)

and *Jot* from Communication Intelligence Corporation (CIC) both provide fast, accurate, and trainable handwriting recognition that you can easily add to your H/PC. ParaGraph International has released *CalliGrapher 4.3*, a natural handwriting recognition system that will recognize cursive as well as printed characters. It also includes a spell checker as an extra bonus. These programs not only recognize handwriting, but also provide a solution for entering Western European characters onto your H/PC.

## Note Taking

Another notable gap in the software built into the Handheld PC is the lack of a note taking application. This gap becomes evident when you are listening to your voicemail and are rummaging for a piece of paper to jot down your messages, or when you go to a meeting and still carry your notebook with you. Several very handy products are now available that promise to eliminate those extra stacks of paper. Programs like *SmARTscribble* from ART, *QuickNotes* from CIC, and *Pocket Pad* from Imagineering, give you the ability to quickly jot down notes with your H/PC stylus. *TakeNote!* from Landware not only provides you with this digital ink pad, but also comes with a keyboard-based note taker and stationary that allows you to keep track of your travel plans, take phone notes, and convert units of measurement. *HPC Notes* from Cognitive Tech-

## ABOUT THE AUTHOR

David Bialer is Director of Business Development for MobileSoft, a division of Philips Electronics North America Corporation. Prior to establishing MobileSoft, he was the senior product manager of software applications for the Velo handheld PC in the Mobile Computing Group of Philips. Prior to joining Philips, he served as a senior manager with Oracle Corporation's New Media Division where he founded a developer program and in the corporate marketing group at Intel. He has also worked as an engineering manager and software developer. Bialer holds an MBA from The Wharton School of University of Pennsylvania and BS degree in computer science from Cornell University.



nology Corporation is a notes organizer that integrates with the H/PC Inbox and allows you to find stored notes quickly and easily.

## Internet Communications

While the Handheld PC ships with *Microsoft Pocket Internet Explorer*, several popular Internet utilities are provided by third party software developers. *Scotty FTP* and *TelnetCE* are utilities offered by Ruksun Software Technologies that enable you to transfer files and remotely access a host computer with vt100 emulation. *AdageUS* offers an Internet news reader, *mobileNews*, giving you access to thousand of popular newsgroups offered by your Internet Service Provider. *MobileIRC*, extends the power of Internet Relay Chat (IRC) to H/PC users. IRC, the world-wide accepted Internet standard of interactive chat, gives users access to thousands of specialized "channels" in a real-time environment.

## E-Mail Solutions

Several E-mail applications have been developed that enhance your Pocket Inbox. *Virtual Courier* offered through Landware and *Mail on the Run* by River Run Software Group give you access your cc:Mail, Exchange mail, and other enterprise mail systems. Another very useful utility is *EncloseIt* by Landware. This utility allows you to send and receive e-mail attachments in UUencoded form.

## Communications Software

*bFAX Professional* from bsquare provides a faxing solution that allows you to fax text, graphics and Pocket Word documents from your Handheld PC as well as receive faxes. It supports the built-in address book, and even allows you to send multiple faxes. *Phonetone* by

Illium is a tone generator (DTMF) that enables you to speed dial phone numbers from your contact manager. *pcANYWHERE CE* from Symantec allows you to dial into your desktop computer, take control of it, and run applications on it - even when you're thousands of miles away.

## Contact Manager Support

Several leading contact management companies are shipping their own solutions for the Handheld PCs. Maximizer Technologies is shipping *Maximizer CELink*, a program that connects with their popular contact manager, and Odyssey is shipping *Pocket On-Schedule*, integrating with its On-Schedule 97.

## Entertainment

Where are the games? Microsoft is shipping the *Windows CE Entertainment Pack* which contains ten popular games including Space Defense - a missile command-like game, Reversi, Blackjack, Chess and six other games. And let's not forget *Chess* from Purple Software, a formidable opponent that easily beat me on my last plane trip.

## Other Useful Applications to Note

*Mobile Forms Database* from AllPen provides a simple form-based information storage utility that can hold a database of your favorite wines, sports statistics, or even hold inventory information. *Pocket Convert* from Surerange Analysis allows you to convert quantities while on the move. It includes over fifty conversion files including units conversion, common abbreviations, US telephone area codes, French/German/Spanish words and phrases, and many more. *Microsoft Pocket Automap Streets* provides over 50

maps of the top US metropolitan cities. *bPRINT* from bsquare allows you to print text, graphics, and Pocket Word documents from your H/PC serial port with the addition of a serial-to-parallel converter cable. Finally *Financial Consultant* by Landware gives you a heavy-duty full-featured financial calculator designed for real estate, retailing, and business professionals.

This is only the first wave of applications. Hundreds of developers are working on more applications, and by this time next year the market will be inundated with them. But how can you get your hands on them now? Many of these are available directly from the manufacturer or through new electronic channels, such as MobileSoft and others. If you know of new applications coming to market, please drop me a line at david\_bialer@mobile-soft.com

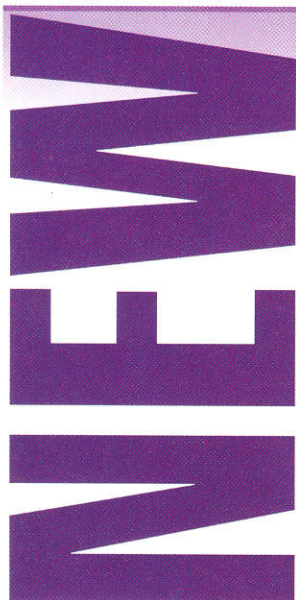
## MobileSoft

MobileSoft, a division of Philips Electronics North America, has established a system to distribute H/PC software titles direct to customers via their Website. The site uses ReleaseSoft electronic software distribution technology, which allows customers to pay online, while protecting sensitive financial information. Credit card purchases by fax or e-mail are also possible.

Visit [www.mobilesoft.com](http://www.mobilesoft.com) to find: EncloseIt, Pocket Convert, Mobile Forms Database, Financial Consultant, Chess, CalliGrapher Version 4.3, CE PowerPak, InScribe, Jot, PenScript, PocketPad v1.2, QuickNotes, smARTwriter CE PLUS, smARTscribble, TakeNote, mobileIRC, mobileNews, Scotty FTP, IntelliSync, Maximizer CELink, Pocket On-Schedule, QuickText, and PhoneTone.

In addition, MobileSoft provides a CD-ROM disk from which software titles can be purchased and released.





# Products

New Products listed here include hardware, software, services, and resources. Prices listed are suggested retail price. Unless otherwise indicated, products are delivered on floppy disk.

Listings do not represent an endorsement by the editors. We have tried to include a comprehensive collection of products available by second quarter, 1997. However, there will be gaps due to information not arriving by our printing deadline. If you have a product to announce in our next publication, please send an e-mail message to [carol\\_degieri@thaddeus.com](mailto:carol_degieri@thaddeus.com)

## Accessories

### Cases

#### E & B Leather Cases

E & B sells a variety of leather cases custom designed for Handheld PCs and other small computers. Cases offer protection to H/PCs as well as convenience for carrying purposes.

Price: varies

CONTACT: E & B Company;  
Phone: 800-896-2273 or 916-344-5047; Fax: 916-782-9306  
Web: [www.ebcases.com](http://www.ebcases.com)

#### Handheld PC Cases

ISOTA cases for the H/PCs include additional room for spare batteries, PC cards, pens, cash, and credit cards. Styles available include: executive portfolio, hip

holster, all-terrain hip lok, metropolis portfolio and armour-coate sheath.

Price: \$25-\$169

Shipping/Handling: \$12.50 FedEx  
CONTACT: Rupp Technology Corp, distributor for Isota; Phone: 888-994-7682 or 602-941-4789; Fax: 602-941-5505; E-mail: [catalog@isota.com](mailto:catalog@isota.com)  
Web: [www.isota.com](http://www.isota.com)

#### The Pouch

Foss Tucker's neoprene and nylon cases protect H/PCs with cushioned, shock resistant material. Indestructable and washable. Not leather.

Price: \$29.95 to \$33

Shipping/Handling: \$4.95  
CONTACT: Foss Tucker, Attn: Phil Richardson; Phone: 800-727-6824 or 520-290-5792; Fax: 520-721-0955

Web: [www.thepouch.com](http://www.thepouch.com)

#### XLC320 and XLC320Z Executive Leather Case

These cases offer padded protection for Handheld PCs and feature pockets for cards and checkbook, notepad, and pen or pencil. Model XLC320Z includes

zipper lock and wrist strap. There is also a XLC250 which holds AC adapter, batteries, cables, and other material in addition to the H/PC.

Price: \$44.95 for XLC320 and \$49.95 for XLC320Z, XLC250 \$69.95

CONTACT: Your One-Stop Palmtop Shop; Phone: 800-709-9494 or 608-752-1537; Fax: 608-752-9548; E-mail: [gc@midplains.net](mailto:gc@midplains.net)  
Web: [www.mrpalmtop.com](http://www.mrpalmtop.com)

## Lights

#### Mini-PC Lights

Mini-PC lights are battery-operated and illuminate the display, keyboard, and work area of any HP/C or Mid-size PDA.

Price: from \$19.95 to \$29.95, Shipping/Handling: \$4  
CONTACT: ASF Associates Ltd., Phone: 800-625-6897 or 516-868-3918; E-mail: [asf1@ix.netcom.com](mailto:asf1@ix.netcom.com)  
Web: [www.std.com/asf1](http://www.std.com/asf1)

#### Palmtop Clip-on Light

The Palmtop Clip-on light with 7 inch polymorphic plastic-rubber gooseneck lets user suspend light source above keyboard and display to clearly illuminate both without bulb spot reflection (light source is not off to side and wasted by reflection). It clips onto left edge of display by catching upper plastic tines on edge of display and rotating 90 degrees to slide lower tine onto back of display case. Uses 2 AA batteries (not included). Rolls into ball to store very compactly.

Price: \$11.95  
Shipping/Handling: \$4.50 per order  
CONTACT: Autel Corporation; Phone: 408-738-8204; Fax: 408-738-1353; E-mail: [autel@prodigy.com](mailto:autel@prodigy.com)

## Other Goodies

#### Clipstand™

The Clipstand telescopic copy holder with suction cup base and 5 clear adhesive discs, enables user to temporarily affix a base to an H/PC or to any surrounding surface. Clip is atop an angle and

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length adjustable telescoping arm which extends to 15 inches for up to legal size sheets or retracts to 6 inches for compact storage.

Price: \$9.25

Shipping/Handling: \$4.50

CONTACT: Autel Corporation; Phone: 408-738-8204; Fax: 408-738-1353; E-mail: autel@prodigy.com

### GC/Lind Power Adapter

This 12 volt power adapter provides power for H/PC use in car cigarette lighter, boats, planes, etc. This 3-Amp unit will charge your batteries and can be used at the same time. Solid black aluminum casing with additional fuse and power on lamp.

Price: \$59.95

CONTACT: Your One-Stop Palmtop Shop; Phone: 800-709-9494 or 608-752-1537; Fax: 608-752-9548; E-mail: gc@midplains.net  
Web: www.mrpalmtop.com

### Optitech Microfiber TechCloth

The Optitech Microfiber TechCloth is a high density, high absorbency cloth designed to clean computer screens, electronic equipment, and CDs. It is said to be "virtually static free" and safe to use on anything sensitive to static electricity. The material is made from polyester and nylon fibers, and can be used without additional liquid cleaners.

Price: \$10

Shipping/handling: \$3.99

CONTACT: OptiTech International; Phone: 800-639-9722 or 412-471-7870, Fax: 412-471-8988

### Rechargeable Batteries

1-800-Batteries sells rechargeable batteries and tools for mobile professionals, including NiMH, NiCad, LiOn batteries, AC adapters/chargers, car adapters.

Price: varies

CONTACT: 1-800-Batteries; Phone: 800-228-8374; Fax: 408-879-1969; E-mail: orders@1800batteries.com  
Web: www.800batteries.com

## Communication

### Fax/E-mail

#### bMOBILE™

bMOBILE works with a Motorola PM 100C cellular digital packet data (CDPD) modem and an account with a CDPD provider (both of which must be purchased separately) to give access to e-mail and a user's existing Internet Service Provider, as well as the

World Wide Web.

Price: \$29.95

Shipping/Handling: \$6, Bytes occupied on H/PC: 90-110 Kb.

CONTACT: bsquare development, Attn: Ann Gorman; Phone: 888-820-4500 or 206-519-5941; Fax: 206-519-5999; E-mail: bFAX@bsquare.com  
Web: www.bsquare.com/development

#### bFAX Pro™

bFAX Pro enables the Handheld PC to send faxes with a standard PC Card fax/modem, (class 2 or 2.0). The program can send and receive text, bitmap, tiff, Pocket Word, and Casio Digital Camera files. Express supports attachments to faxes. bFAX Professional lets you receive faxes and provides Pocket Word support.

Price: \$69.95

Shipping/Handling: \$6, Bytes occupied on H/PC: Approximately 700 Kb  
CONTACT: (see above)

#### bFAX Lite

For a free demonstration version of bFAX Pro download bFAX Lite from the bsquare.com Website (see above).

#### Enclose It

This program is a UUencoder/UUdecoder for sending any file via e-mail.

Price: \$29.95

Shipping/Handling: \$4.50 first class mail,

Bytes occupied on H/PC: 42 Kb

CONTACT: Landware, Inc., Attn: Ken Landau; Phone: 800-526-3977 or 201-261-7944; Fax: 201-261-7949; E-mail: sales@landware.com

Web: www.landware.com

#### Mail on the Run!®

Provides users with direct and remote access to the world's most popular LAN-based e-mail systems, including Microsoft Mail®, Microsoft Exchange Server, Lotus cc:Mail, and Lotus Notes Mail. Users can communicate with their mail systems directly or over telephone, cellular or wireless networks such as ARDIS.

Price: \$89

Shipping/Handling: \$9 via Priority Mail, \$14 for overnight, Bytes occupied on H/PC: 60 Kb.

CONTACT: River Run Software Group, Attn: Taffy Holliday; Phone: 203-861-0090; Fax: 203-861-0096; E-mail: info@riverrun.com  
Web: www.riverrun.com

#### Virtual Courier™

MicroBurst's Virtual Courier serves as a gateway between Handheld PCs and MS-Mail, Exchange, and cc:Mail LAN based e-mail systems. It requires no additional program memory on the Handheld PC. It operates on Windows 95 and NT 3.5 or above

1:800:852:7877

www.mobilescape.com

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Tempe, AZ 85281

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desktop systems. Users can gateway to LAN e-mail through direct dial modem, or through Internet connections.

Price: Single user version - \$69, Multi-user version (25 users) \$125.

CONTACT: Sold by Landware, Phone: 800-526-3977 or 201-261-7944; Fax: 201-261-7949; E-mail: MarkF@MBurst.com

Web: [www.VirtualCourier.com](http://www.VirtualCourier.com)

## WISPrMAIL and WISPrBrowse

Use these products to send and receive Internet e-mail from a Handheld PC. WISPrMAIL allows you to preview your e-mail headers and only download the ones that are important to you. The WISPrBrowse feature allows H/PC users to surf the Web with standard Internet browsing software, including a full view of HTML Web pages.

Price: varies

CONTACT: Datamatic, Inc., Attn: Ken Kercher; Phone: 972-234-5000; Fax: 972-234-1134; E-mail: [ken\\_kercher@datamatic.com](mailto:ken_kercher@datamatic.com)  
Web: [www.datamatic.com](http://www.datamatic.com)

## Wireless

### ARDIS Wireless Services

ARDIS provides two-way wireless data communications capabilities in over 10,700 cities in the United States. Handheld PC users can wirelessly send and receive messages from other devices, LANs and over the Internet by using the built-in Windows CE e-mail interface and a Motorola PM 100D wireless modem. In addition, specialized news services for stock quotes, late-breaking news stories and individualized customer content is available.

Price: Varies. Modem card comes with enrollment.

CONTACT: ARDIS, Attn: Dan Sherwood; Phone: 800-494-1732 or 847-913-4685; Fax: 847-913-4700

Web: [www.ardis.com](http://www.ardis.com)

### IKON MobileCHOICE™

IKON Mobile CHOICE is a mobile, wireless, and dial-up application suite that includes IKON Mobility Services, such as wireless faxing, two-way paging, operator services, and the ability to send and receive

Internet e-mail. USA only.

Price: varies depending on service agreement.

CONTACT: IKON Office Solutions; Phone:

888-265-3535; Fax: 520-577-646; E-mail:

[CEInfo@Integra.net](mailto:CEInfo@Integra.net)

Web: [www.integra.net](http://www.integra.net)

### Infowave CE

Two-way wireless messaging client for the Handheld PC. Infowave CE adds wireless via the USRobotics AllPoints Card — for two-way e-mail and Web access to the Exchange features of CE. Infowave CE also offers

work independent APIs include radio modem drivers, a mobile gateway with programmable "agents," and a high-performance transport protocol optimized for wireless. InstantRF currently supports RAM Mobile Data, CDPD, ARDIS, circuit switched networks (dial-up, cellular, GSM), and several other networks. It runs on the following operating systems: Windows CE, DOS, Windows 3.1, Windows NT, OS/2, and Psion.

Price: \$795 for SDK

Shipping/Handling: \$25; Bytes occupied on H/PC: 50 Kb

CONTACT: Nettech, Attn: Don Grust;

Phone: 609-683-0100;

Fax: 609-683-5019;

E-mail:

[don@NettechRF.com](mailto:don@NettechRF.com)

Web:

[www.NettechRF.com](http://www.NettechRF.com)

### LocusOne Wireless Messaging and Voice Integration Services

The LocusOne service links e-mail, phone, fax, and pager to an H/PC, creating a unified messaging system. For example, LocusOne can screen voice and fax calls, route them, and notify the user when a voice; e-mail or fax was left and by whom. A modem is required. Software is provided. USA only.

Price: varies

CONTACT: LocusOne

Communications;

Phone: 800-675-6287;

Fax: 904-998-9032;

E-mail: [@locusone.net](mailto:@locusone.net)

Web: [www.locusone.net](http://www.locusone.net)

### Paradigm4

Paradigm4 provides a wireless network service in the USA at a flat rate.

Price: \$79/month or \$199/month

CONTACT: Paradigm4; Phone: 888-232-6111;

Fax: 201-808-9581;

E-mail: [hpcinfo@paradigm4.com](mailto:hpcinfo@paradigm4.com)

Web: [www.paradigm4.com](http://www.paradigm4.com)

### RAM MOBILE DATA

RAM Mobile Data network provides wireless services throughout the USA.

Price: Varies

## MICROSOFT ENTERTAINMENT PACK

In the stores now, also available from direct order mailorder sources such as EduCALC or J&R. Price: \$34.99.

The Microsoft Entertainment Pack for Windows CE is a collection of ten games designed to amuse you, puzzle you, challenge you, or just distract you for a few minutes. Some of the games are designed for two-person play: you can play against the computer or use infrared communications to play a friend on another Handheld PC. Included are the following games (with descriptions by Microsoft):

- **Blackjack:** Test your card-sense and luck at this casino game.
- **Chess:** Play the game of the ages against the computer or your favorite opponent, sharing the same Handheld PC.
- **Codebreaker:** Try to crack the secret code in this brain-teaser.
- **Freecell:** Even with all of the cards on the table, it takes skill and practice to win this version of the classic solitaire game.
- **Hearts:** Play this classic four-person card game against the computer or an opponent over an infrared beam, with the computer playing the other two hands.
- **Minesweeper:** Clear the minefield using skill and speed.
- **Reversi:** Just when you think you've won, your fortunes reverse. Play against the computer or an opponent over an infrared beam.
- **Sink the Ships:** Sink your opponent's ships before yours end up at the bottom of the sea. Play against the computer or your favorite opponent over an infrared beam.
- **Space Defense:** Defend your space station and its life pods from enemy attack. Quick reflexes are needed if you want to survive.
- **Taipei:** Match the tiles in this ancient favorite from the Far East.

FetchMail, Infowave's one e-mail box solution for multiple e-mail box users. Users can retrieve e-mail from any POP3 account and receive it on their Handheld PC wirelessly.

Available now in Canada. Available in USA to corporate clients., Price: varies.

CONTACT: Infowave Wireless Messaging, Inc., Attn: Rob Boyko; Phone: 800-463-6928 or 604-473-3640; Fax: 604-473-3699; E-mail: [info@infowave.net](mailto:info@infowave.net)

Web: [www.infowave.net](http://www.infowave.net)

### InstantRF®

Nettech presents wireless middleware for software developers who require optimized connectivity tools for building enterprise-strength mobile applications. InstantRF's net-



CONTACT: RAM Mobile Data; Phone: 800-726-3210, ext. 478; Fax: 800-763-1110; E-Mail: RAM.Info@ram.com  
Web: [www.ram.com](http://www.ram.com)

### Ricochet

This wireless modem and Internet service provides an unlimited-usage Internet account, a POP e-mail account, Netscape Navigator software, newsgroups and FTP access. The Ricochet service is currently available in the greater San Francisco Bay Area, Seattle, Washington, D.C. and on university and corporate campuses in the USA. An adapter cable is needed.

Price: \$29.95/mo., and \$10/mo. modem rental  
CONTACT: Metricom; Phone: 408-399-8198.  
Web: [www.ricochet.net](http://www.ricochet.net)

### Socket™ PageCard®

Alphanumeric pager with PC Card interface that turns the Handheld PC into a wireless data receiver. Comes with PageSoft for Windows CE to download messages into your MAIL Inbox.

Price: \$399  
CONTACT: Mobile Planet for individual sales, Phone: 800-675-2638; 818-888-9348; Fax: 818-888-3484. For vertical markets contact Socket Communications, Inc.; Phone: 800-483-5838 or 510-744-2700; Fax: 510-744-2727 ; E-mail: [info@socketcom.com](mailto:info@socketcom.com)  
Web: [www.socketcom.com](http://www.socketcom.com)

### SkyTel Messenger™

SkyTel Messenger for Windows CE gives users the ability to link their SkyTel 2-Way<sup>SM</sup> pager to their H/PC to exchange messages with other SkyTel pagers and any Internet e-mail address. SkyTel Messenger software integrates into the H/PC Inbox communications application, and gives users direct access to pager and e-mail addresses stored in the H/PC contact manager, allowing for fast creation and sending of wireless messages.

Price: \$29.95  
CONTACT: SkyTel; Phone: 800-395-8930  
Web: [www.skytel.com](http://www.skytel.com)

### WyndMail

Using the built-in e-mail application of Windows CE, WyndMail offers wireless Internet e-mail, faxing, paging, text-to-voice and voice-to-text messaging and other services. WyndMail supports various wireless modems and provides nationwide coverage in the USA. Service can include rental of a wireless modem and is available for low monthly rates; no long-term contract is required.

Price: \$varies for service. Software is free.  
Shipping and handling \$10; Bytes occupied on H/PC: 140 Kb  
CONTACT: Wynd Communications, Attn: Sean Lee; Phone: 800-549-9800; Fax: 805-781-

6001; E-mail: [info@wynd.com](mailto:info@wynd.com)  
Web: [www.wynd.com](http://www.wynd.com)

### ZAP-IT™

ZAP-IT provides 24-hour access to incoming and outgoing communications from a Handheld PC or laptop, including e-mail, faxes, and phone messages. A recent enhancement allows callers to leave a variety of messages via a subscriber's personal toll-free number. A modem is required, or may be rented from DTS Wireless. USA only.

Price: 5 price plans, including \$9.95 plus message units costs for the start up plan.  
CONTACT: DTS Wireless; Phone: 888-243-8387; E-mail: [info@dts.net](mailto:info@dts.net)  
Web: [www.dtswireless.com](http://www.dtswireless.com)

## Connectivity

### Infrared Transfer

#### JetEye® 9680

JetEye infrared interface allows users to transfer files from a Handheld PC to a desktop computer using infrared technology.

Price: \$135 (discounts for volume purchases in seed unit program).  
Shipping/Handling: \$5.75.  
CONTACT: Extended Systems, Attn: Mark Willner; Phone: 208-322-7575; Fax: 208-327-1906; E-mail: [info@extendsys.com](mailto:info@extendsys.com)  
Web: [www.extendsys.com](http://www.extendsys.com)

### Remote Access

#### pcANYWHERE

Lets users run desktop PCs running Windows 95 or Windows NT 3.5/4 from their Handheld PCs. (See article on page 33.)

### Printer-link

#### bPRINT™

Allows users to print from their Handheld PC. bPRINT is integrated with bFAX. All documents supported by bFAX are also supported by bPRINT. (Pocket Word documents are supported in the 3.01 release of bFAX Professional. Registered users of bFAX Professional 3.0 can download this functionality free at the bsquare development Website.) Casio Digital Camera file support for bPRINT is also available as a free download at the bsquare Website. Third-party

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corporate applications

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the complete handheld resource



cables connect a user's Handheld PC to an HP-PCL4(R)- compatible printer (both sold separately).

Price: \$29.95

Shipping/Handling: \$6, Bytes occupied on H/PC: 330-370 Kb

CONTACT: bsquare development, Attn: Ann Gorman; Phone: 888-820-4500 or 206-519-5941; Fax: 206-519-5999; E-mail: bFAX@bsquare.com

Web: [www.bsquare.com/development](http://www.bsquare.com/development)

## Link-A-Printer I

This cable connects Handheld PCs to printers, for use with programs like bPRINT.

Price: \$59 plus shipping

CONTACT: Greenwich Instruments USA; Phone: 800-476-4070 or 704-875-8490; Fax: 704-875-2801.

## Synchronization

### Desktop To Go™

As a file transfer and synchronization software package, Desktop To Go will include synchronizers for Microsoft Outlook 97, Lotus Organizer 97 and 97 GS, Lotus Notes 4.5, ACT! 3.0. It will also include filters to share Pocket Word and Pocket Excel documents with Word Perfect, Ami Pro, MS Works, Lotus 1-2-3 and Quattro Pro users.

Available now: Version 1: word processing filters, and spreadsheet filters; Price: \$19.95; can be downloaded from the company Website.

Available now: Version 2: for Lotus Organizer 97 synchronization; Price: \$49; \$6 shipping.

Available third quarter, 1997: later versions for all additional product synchronization as described above; Price: \$75; Shipping/Handling: \$6 (USA), \$15 (Canada), \$20 (elsewhere); Delivered on: CD

CONTACT: DataViz, Inc., Attn: Shaun Berner; Phone: 203-268-0030 ext. 3037; Fax: 203-268-4345; E-mail: [info@list.dataviz.com](mailto:info@list.dataviz.com)  
Web: [www.dataviz.com](http://www.dataviz.com)

### Intellisync™

Software that provides direct synchronization of contacts, calendar and task information between Windows CE and a wide range of PC-based contact managers, personal information managers and group schedulers. Programs supported for synchronization include Act!, Outlook 97, Microsoft Schedule+, Lotus Organizer, ECCO, GoldMine, NetManage, DayTimer Organizer, Sidekick, and others.

Price: \$69.95

Bytes occupied on H/PC: The program is installed on a desktop or laptop computer.

CONTACT: Puma Technology; Phone: 800-774-7862; Fax: 408-433-2212

Web: [www.pumatech.com](http://www.pumatech.com)

### Harmony 97™

Harmony 97 provides embedded one-click synchronization between H/PCs and many contact managers (PIMS) by adding a menu bar inside the PIMs. It enables users to maintain a single set of data on H/PC and PIM. A free trial version is available to download from the Rand Software Website.

Price: Call

Delivered on CD

CONTACT: Rand Software; Phone: 888-726-3763 or 802-362-0663; Fax: 802-362-6052; E-mail: [senthil@randsoft.com](mailto:senthil@randsoft.com)

Web: [www.randsoft.com](http://www.randsoft.com)

### InSync!™

Provides users with the ability to synchronize local Calendar, Tasks, and Contacts databases on their H/PCs with Scheduling and Calendaring data stored in Lotus Notes, Lotus Organizer or Microsoft Schedule+. Provides remote access over wireline and wireless networks.

Price: Call Vendor.

CONTACT: River Run Software Group, Attn: Taffy Holliday; Phone: 203-861-0090; Fax: 203-861-0096; E-mail: [info@riverrun.com](mailto:info@riverrun.com)

Web: [www.riverrun.com](http://www.riverrun.com)

### MaximizerCELink

MaximizerCELink provides two-way synchronization with Maximizer 97's Hotlist, Calendar, Contact files, and Notes with H/PCs PIM.

Price: \$49

CONTACT: Maximizer CELink, Phone: 800-368-6344 or 604-601-8100; E-mail: [support@maximizer.com](mailto:support@maximizer.com)

Web: [www.maximizer.com](http://www.maximizer.com)

## Handwriting/ Speech Input

### Handwriting

#### CalliGrapher™

CalliGrapher is handwriting recognition software for the Windows CE operating system. CalliGrapher users can write naturally, using cursive, print, or mixed styles. The program intelligently recognizes handwriting style. It does not require a user to learn a new way of writing.

Price: \$49.99

Bytes occupied on H/PC: 500 Kb-900 Kb depending on version and platform

CONTACT: ParaGraph International, Inc.; Phone: 800-810-0055 or 408-364-7700; Fax: 408-374-5466; E-mail: [dstevens@paragraph.com](mailto:dstevens@paragraph.com)  
[netcalif.paragraph.com](http://netcalif.paragraph.com)

### Jot™

Jot is specifically designed for handwriting input on handheld computing devices. It is user independent and combines a natural character set with a patented user interface for accurate, rapid, and modeless input. Jot supports both US and Western European characters.

Price: \$69

Shipping/Handling: \$13 for 2nd day air in USA; Bytes occupied on H/PC: 76 Kb to 86 Kb depending on character set and processor.

CONTACT: Communication Intelligence Corporation (CIC), Attn: Order Processing; Phone: 415-802-7735; Fax: 415-802-7777; E-mail: [mduva@cic.com](mailto:mduva@cic.com)

Web: [www.cic.com](http://www.cic.com)

### QuickNotes™

QuickNotes is an electronic pad of paper, which collects handwritten notes and organizes them by date. QuickNotes instantly saves. It conserves computer memory by using CIC's unique INKshrINK® compression technology.

Price: \$24

Shipping/Handling: \$13 for 2nd day air in USA; Bytes occupied on H/PC: 40 Kb to 60 Kb depending on processor.

CONTACT: (See above.)

### PenScript™

PenScript is the Windows CE version of QuickScript, the original, patented handwriting word processor. It allows users to write and draw "naturally" with electronic ink. A handwritten document can be edited with the power of a word processor but without the requirement that the writing be translated to computer text. It features graphics drawing tools, small memory footprint, and patented dynamic data compression.

Price: \$49.95.

Bytes occupied on H/PC: 100 Kb

CONTACT: (Delivered electronically thru MobileSoft)

Marathon Development Corporation, Attn: PenScript; Phone: e-mail or fax only; Fax: 510-210-1211; E-mail: [marathon@value.net](mailto:marathon@value.net); Send Purchase Requests to Website below.

Web: [www.mobilesoft.com](http://www.mobilesoft.com)

### PocketPad

PocketPad is a digital ink notepad for the Windows CE operating system. With PocketPad, users can store notes, sketches,



and drawings on the H/PC.

Price: 29.95

Shipping/Handling: \$2.95 standard mail; Bytes occupied on H/PC: 44 Kb

CONTACT: Imagineering, Inc.; Phone: 801-233-8325; Fax: 801-256-9359; E-mail:

sales@imagine.com

Web: www.imagne.com

### smARTwriter™ CE PLUS

This product provides handwriting recognition on the H/PC running Windows CE. The user can write on the screen and the entry will be converted to typed text. The PLUS package also includes Scribble, ART's drawing program, and INKPAD, ART's Notepad for Windows CE. The software is also capable of drawing symbols to create words.

Price: \$69.95

Shipping/Handling: Free from Website, Bytes occupied on H/PC: 120 Kb

CONTACT: Advanced Recognition

Technologies, Inc.; Phone: 818-678-3999; Fax: 818-678-3994; E-mail: sales@artcomp.com

Web: www.artcomp.com

## Special Input

### InScribe™

InScribe for Windows CE is a new way to enter text on a Handheld PC. Users enter text and numbers by moving the stylus between characters on a grid. The grid is fully configurable, allowing users to design the layout that works best for them. InScribe supports the complete ANSI character set, including international language characters for western European languages.

Price: \$39

Shipping/Handling: \$3 standard mail; Bytes occupied on H/PC: 48 Kb

CONTACT: Ilium Software; Phone: 888-632-5388 or 313-973-7761; Fax: 313-207-9358; E-mail: info@iliumsoft.com

Web: www.iliumsoft.com

### QuickText

A text glossary for Windows CE, this program works in PocketWord, TakeNote, and others. It offers one-tap access via stylus, and two-level hierarchy.

Price: \$29.95

Shipping/Handling: \$4.50 first class mail; Bytes occupied on H/PC: 25 Kb

CONTACT: Landware, Inc., Attn: Ken Landau; Phone: 800-526-3977 or 201-261-7944; Fax: 201-261-7949; E-mail: sales@landware.com

Web: www.landware.com

### TakeNote

An intelligent notepad that handles ink notes, text notes, conversions, phone memos and plane travel information. Includes New

Contact, New Task and Launcher.

Price: \$39.95

Shipping/Handling: \$4.50 first class mail; Bytes occupied on H/PC: 120 Kb

CONTACT: (See above.)

## Speech

### smARTcontact

ART's smARTcontact provides speech commands to the contact manager supplied with the Windows CE operating system software. The user will speak a contact name and the software will look up the name in the contact list. Once found, the user can say "Dial" and the program will dial the phone number of the contact. Requires H/PC with microphone.

Price: \$49.95

Shipping/Handling: Free from Website; Bytes occupied on H/PC: 70 Kb

CONTACT: Advanced Recognition

Technologies, Inc.; Phone: 818-678-3999; Fax: 818-678-3994; E-mail: sales@artcomp.com

Web: www.artcomp.com

### smARTcommand for CE

smARTcommand for Windows CE operating system allows the user to activate a program application or open a file by voice. Works only on H/PCs with a microphone.

Price: \$29.95

Shipping/Handling: Free from Website; Bytes occupied on H/PC: 70 Kb

CONTACT: (See above.)

### Voice Memo

Voice Memo adds speech to the H/PCs that have a microphone. This program, when activated, allows the user to record memos on the H/PC and save them for later playback or to attach to an e-mail to send to others.

Price: \$49.95

Shipping/Handling: Free from Website; Bytes occupied on H/PC: 70 Kb

CONTACT: (See above.)

## PC Cards

### Fax/Modem

(See also the "Flash/Storage" section, as some companies offer several types of cards)

### 33.6 Communicator with SimpleJack

Simple Technology's 33.6 Communicator is a PC Card data/fax modem with the

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SimpleJack RJ-11. It does not require cables for attachment of phone line. Other features include digital line guard, error correction, 5 year warranty, and Cheyenne Bitware fax software.

Price: \$199

CONTACT: Products from Simple Technology, Inc. are available from CDW, Ingram Micro, Insight, Microage, and PC's Complete or call 800-367-7330 or 714-476-1180 for locations.

## Apex Data 33.6 Mobile Plus Modem Card V. 34

The Mobile Plus modem card moves data at 33.6 bps and faxes at 14.4 bps. It has a lower-than-normal power draw than typical fast modems. It comes with a 5 year warranty.

Price: \$199

CONTACT: Apex Data Products Division; Phone: 800-841-2739 or 510-623-1231; Fax: 510-249-1600.

Web: [www.apexdata.com/](http://www.apexdata.com/)

## EXP ThinkFax CE/M Card (Fax/Modem/Storage in one card)

EXP's ThinFax PCMCIA card includes storage (4, 8, and 16 Mb of flash memory) and fax capabilities. Features include 33.6 kb/sec for searching Internet, built-in "MiniFax" communication software, and an external battery pack, so that Handheld PC batteries will not be drained. EXP also sells a fax card alone without flash memory.

Price: varies

CONTACT: EXP; Phone: 714-453-1020; Fax: 714-453-1319

Web: [www.expnet.com](http://www.expnet.com)

## Montana 33.6 PC Card Modem/Fax

The Montana 33.6 PC Card Modem/Fax works in Handheld PCs as well as Motorola cellular phones. It is a wireless modem but also works with land lines. It features fast speed and low power consumption.

Price: \$200

CONTACT: Motorola; Phone: 800-427-26252, 800-566-3266 or 205-566-3266; Fax: 205-830-5657

Web: [www.mot.com/pccards](http://www.mot.com/pccards)

## MagicRAM® 33.6 Fax/Modem PC Card, standard and cellular versions

This card provides high-speed modem connectivity for Handheld PCs. It features error correction, data compression, Group III fax compatibility, and lower power consumption. It utilizes the Hayes AT command set as well as Bell and CCITT standards and protocols. A cellular version is also available to be used with cellular phones. It can be used to send faxes with the included bFAX software.

Price: \$149 for standard 33.6 Fax/Modem, \$179 for cellular version

CONTACT: MagicRAM, Inc., Phone: 800-

272-6242 or 213-413-9999; Fax: 213-413-0828; E-mail: [sales@magicram.com](mailto:sales@magicram.com)

Web: [www.magicram.com](http://www.magicram.com)

## Pretec Fax/Modem PC Cards

Pretec offers V.34+ Fax/ Modem cards supporting 33,600bps data modem and 14,400bps fax capability. With V.42/MNP2-4 error control and V.42bis/MNP5 data compression, users can access E-mail, on-line services, and Internet Web sites at up to 115,200 bps DTE data rate.

The Modem28.8 and Modem14.4 are 28,800bps and 14,400bps Fax/Modem respectively. The Modem14.4 includes voice mail capabilities. All Fax/Modem cards offer Group III send and receive fax capabilities.

Price: \$129 for Modem28.8; \$65 for 14.4

CONTACT: Pretec Electronics Corp.; Phone: 510-440-0535; Fax: 510-440-0534; E-mail: [cardinfo@pretec.com](mailto:cardinfo@pretec.com)

Web: [www.pretec.com](http://www.pretec.com)

## Viking's ATA flash cards

Viking ATA flash cards comply with PCMCIA ATA standards. Their capacities range from 2 Mb to 40 Mb and they may be used in handhelds, notebooks, cameras and other devices.

Price: \$100 for 2 Mb, \$390 for 20 Mb, etc.

CONTACT: Viking Components; Phone: 800-338-2361 or 714-643-7255; Fax: 714-643-7250

Web: [www.vikingcomponents.com](http://www.vikingcomponents.com)

# Flash/Storage

## IBM ATA Cards

These storage cards come in a range of sizes, and require low power consumption.

Price: Varies

CONTACT: For retail sales: EduCALC; Phone: 800-713-6526 or 714-582-2637; Fax: 714-582-1445

Web: [www.educalc.com](http://www.educalc.com)

## Kingmax Cards

Kingmax offers ATA flash and compact flash storage solutions, as well as Fax/Modem cards for Handheld PCs and digital cameras.

Price: Varies

CONTACT: Kingmax; Phone: 909-468-0958; Fax: 909-468-0769; E-mail: [Kingmax@Kingmax.com](mailto:Kingmax@Kingmax.com)

Web: [www.kingmax.com](http://www.kingmax.com)

## Miobile Peripherals Electronic ATA Flash

KMobile Peripherals offers ATA Flash cards from 4 Mb to 24 Mb for Handheld PCs.

CONTACT: Mobile Peripherals Corp.; 888-999-6732 or 818-913-7200; Fax: 818-913-7550; E-mail: [sales@MPEC](mailto:sales@MPEC)

Web: [www.mpec.com](http://www.mpec.com)

## PalmMate MPC Storage Card

This card features high-speed read/write access and low power consumption. It comes in a range of sizes and is also available for digital cameras.

Price: Ranges from \$159 for 4 Mb to \$1369 for 64 Mb.

CONTACT: Available through Envoy Data Corporation, Phone: 800-368-6971. Or contact ActionTec Electronics, Inc.; Phone: 714-851-8242; Fax: 714-851-8249; E-mail: [mikeb@actiontec.com](mailto:mikeb@actiontec.com)

## MagicRAM® ATA Turbo Flash Memory Card

MagicRAM Turbo Flash Memory Cards are specifically designed for Handheld PCs, PDAs, and digital cameras, and provide storage solutions for data and digital pictures. They feature rapid read/write plus super low power consumption. Compatible with DOS, Windows CE, 95, 3.x operating systems. MagicRAM Turbo Flash Cards have been tested and approved by Microsoft for use in Handheld PCs.

Price: Ranges from \$99 for 2 Mb to \$699 for 64 Mb.

CONTACT: MagicRAM, Inc., Phone: 800-272-6242 or 213-413-9999; Fax: 213-413-0828; E-mail: [sales@magicram.com](mailto:sales@magicram.com)

Web: [www.magicram.com](http://www.magicram.com)

## SanDisk™ Compact Flash Cards; SanDisk Type II Flash Disk Cards

Features of SanDisk flash cards include low power consumption and reliability (including at temperature extremes). They come in a wide range of capacities from 2 Mb to 85 Mb.

Price: Range from \$79 for 2 Mb to \$1300 for 85 Mb.

CONTACT: SanDisk Corp; Phone: 408-542-0500; Fax 408-542-0403; E-mail: [info@sandisk.com](mailto:info@sandisk.com)

Web: [www.sandisk.com](http://www.sandisk.com)

## Simple Technology's ATA Flash Cards

Simple Technology's ATA Flash Cards provide storage solutions for new Handheld PCs, digital cameras, and cellular phones. Sizes range from 2 Mb to 40 Mb.

Price: \$110 for 2 Mb to \$545 for 40 Mb

CONTACT: Products from Simple Technology, Inc. are available from CDW, Ingram Micro, Insight, Microage, and PC's Complete or call 800-367-7330 or 714-476-1180 for locations.

## Flash Storage PC Card

Pretec's series C3 Flash storage PC cards have been tested by manufacturer for use with Handheld PCs. Capacity of up to 64 Mb is available.



Price: varies  
 CONTACT: Pretec Electronics Corp.; Phone: 510-440-0535; Fax: 510-440-0534; E-mail: cardinfo@pretec.com  
 Web: www.pretec.com

## PC Card Drives

### CardDock Desktop PC Card Reader/Writer

CardDock is an internal drive for PCMCIA cards. It delivers PC Card interchangeability for updating files or loading software. Supports 2 cards simultaneously.

Price: \$149 (or \$298 for a 4-slot)  
 Shipping/Handling: varies  
 CONTACT: Grystone Peripherals; Phone: 800-600-5710; Fax: 408-866-8328; E-mail: grystone@grystone.com  
 Web: www.grystone.com

### Card-link Model CL680

The card-link is a PC Card slot for desktop computers. It allows users of Windows CE to transfer files between their Handheld PC and the desktop, using a type II PC card. This external card drive hooks up to a PC via the printer port.

Price: \$179.95  
 Shipping/Handling: \$7 by UPS/G.  
 A floppy disk is included with hardware.  
 CONTACT: Steele Creek Technologies, Inc.; Phone: 704-588-1780; Fax: same; E-mail: paulramsd@cardlink.com  
 Web: www.cardlink.com

### Flashdrive

The flashdrive series of reader/writers accepts ATA cards. Allows the H/PC user to transfer data to a desktop computer using an ATA card.

Price: \$99 to \$159  
 CONTACT: Envoy Data, Phone: 800-368-6971 or 602-892-0954; Fax: 602-892-0029; E-mail: info@enjoydata.com  
 Web: www.envoydata.com

## Serial Adapter

### Serial Adapter PCMCIA Card

An ultralow power RS-232 communications adapter compatible with the Windows CE registry. Users can connect external modems, printers, GPS devices, bar code readers and other communication devices to their Handheld PCs.

Price: \$169  
 CONTACT: Mobile Planet for individual sales, Phone: 800-675-2638; 818-888-9348; Fax: 818-888-3484. For vertical markets con-

tact Socket Communications, Inc.; Phone: 510-744-2700; Fax: 510-744-2727; E-mail: info@socketcom.com  
 Web: www.socketcom.com

### SSP-100

Add a serial port to a Handheld PC with the SSP-100 PC Card. The attached cable and serial port allow RS232 serial devices to be attached.

Price: \$169 plus shipping  
 CONTACT: Quatech, Inc.; Phone: 800-553-1170 or 330-434-3154; Fax: 330-434-1409; E-mail: sales@quatech.com  
 Web: www.quatech.com

## Services

### Custom Design

#### Corporate Mobile Applications

Steton Technology Group develops integrated corporate mobile applications for Microsoft Windows CE. Specific areas of expertise include client management, audit and inspection, and field service operations. In developing applications for these areas, Steton specializes in seamless integration with corporate infrastructure.

Price: Varies  
 CONTACT: Steton Technology, Inc., Attn: Steve Caplin; Phone: 512-331-5714; Fax: 512-331-5747; E-mail: caplin@steton.com  
 Web: www.steton.com

#### Green Mountain Software Development Services

Green Mountain software provides custom software development services for the Microsoft Windows CE platform. Services include user interface design, work with communications and peripherals, and interfaces with host systems.

Price: Contact Vendor  
 CONTACT: Green Mountain Software Corporation, Attn: Ann Pettyjohn; Phone: 802-865-2728; Fax: 802-865-2468; E-mail: Info@GMSW.com  
 Web: www.GMSW.com

#### MicroBurst Custom Service

MicroBurst develops custom applications for Windows CE, other handhelds including: Palm Pilot, GEOS, Newton, smart phones, and desktop Windows '95, NT, Mac, and OS/2. Specialties include: messaging for Exchange Forms, Lotus cc:Mail and Notes, Groupwise, wireless data, smartphones, and workflow. Provides international develop-

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ment and porting for European, Japanese, and other Asian languages.

Price: varies

CONTACT: MicroBurst, Inc.; Phone: 301-330-2995; Fax: 301-330-8609; E-mail:

MarkF@MBurst.com

Web: www.MBurst.com

## Repair/Trade

### Calculator World Services

Calculator World repairs and upgrades Handheld PCs. (They have 14 years experience with HP handheld products.) They also sell and trade various types of Handheld PCs, HP Palmtops and calculators, Psions, and Sharps.

Price: Varies

CONTACT: Calculator World, Inc.; Phone: 610-588-4444; Fax: 610-588-1727

## Training

### Self Management and the Handheld PC

Self Management and the Handheld PC is designed for the corporate client. The intent is to merge the functions of Handheld PCs, the client's business process, and a productivity framework developed by Priority Focus. The training is designed to facilitate a smooth transition to the use of Handheld PC's both in and out of the office.

Price: \$2500 for 1/2 day, \$3000 for full day, maximum of 20 people per session.  
CONTACT: Priority Focus; Phone: 800-438-5512 or 619-697-9566; Fax: 619-697-2804;  
E-mail: lkimbell@worldnet.att.net

# Software Assortment

## Calculators

### proCALC

proCALC is a problem solver and calculator. Includes RPN and algebraic, input logic, built-in science statistics, finance and trigonometric functions.

Price: \$39.95

Shipping/Handling: \$4 first class mail; Bytes

# Publications

## Magazines and Newsletters

### Andrew Seybold's Outlook

In this 36-48 page monthly publication, Andrew Seybold shares his perspective and knowledge as an industry insider. Topics include hardware, software, services, mobile implementation, communications, the Internet, the Mobile Executive, and others. Free sample available.

CONTACT: Andrew Seybold's Outlook, Phone: 408-338-7701; Fax: 408-338-7806

Web: www.outlook.com

### Handheld PC Magazine

That's us. Handheld PC Magazine will keep you current with the latest Handheld PC news and product information. We provide articles, reviews, tips, user profiles, and more. (See our order card in this issue to subscribe.) Price: \$34.95/year. CONTACT: Phone: 800-373-6114 or 515-472-6330; Fax: 515-472-1879; E-mail: orders@thaddeus.com; Web: www.thaddeus.com

### Power CD: The Handheld PC Magazine Supplement

This subscription CD contains the freeware and shareware mentioned in the corresponding *Handheld PC Magazine*. Also, PowerCD includes advertisers' Websites and the content of the current *Handheld PC Magazine* that you can read using your H/PC or desktop Web browser. Price: \$99.95/year. CONTACT: see above.

### Handheld Systems Journal

*Handheld Systems Journal*, a bimonthly magazine about software development for handheld computers, has a special focus on Windows CE. Now in its fourth year, each issue typically includes news, product announcements, reviews, and articles for all programming levels. There is an optional source code disk subscription, plus a money-back guarantee.

Price: \$70 North America, \$90 elsewhere. CONTACT: Creative Digital Publishing, Inc., Attn: Steve Mann, Phone: 415-621-4252; Fax: 415-621-4922; E-Mail: hhca@cdpubs.com  
Web: www.cdpubs.com

### Mobilis

*Mobilis* is a mobile computing lifestyle e-zine, offering interviews, product reviews, reader feedback and tips. Back issues are online here as well as the current edition.

Web: www.volksware.com/mobilis/

### Pen Computing

This bi-monthly magazine reports on Windows CE, Newton, Pilot, Zaurus, and others. Price: \$18/year; CONTACT: Pen Computing, Inc., P.O. Box 408, Plainview, NY 11803  
Web: www.pencomputing.com

### Pen-Based Computing

*Pen-Based Computing: The Journal of Stylus Systems* newsletter covers the vertical mobile computing and communications market. It includes in-depth previews of coming technology, interviews, reviews, and announcements.

Price: \$200 in North America; CONTACT: Pen-Based Computing, Phone: 250-472-1215.  
Web: www.volksware.com/pbc

### Windows CE Resource Guide

*Affinity's* guide comes packaged with Handheld PCs. It includes descriptions of some of the hardware and software products that are compatible with Windows CE.

Price: \$5 for extra copies. CONTACT: Affinity Publishing, Phone: 918-831-9732; Fax: 206-281-1799; E-mail: affinity@pennwell.com



## Books ❖ Books ❖ Books ❖ Books

### The Handheld Computer Almanac

The Handheld Computer Almanac is a guide to products and services for H/PCs, organizers, palmtops, etc. With more than 600 companies and 1100 products, it includes detailed descriptions of hardware, software, consultants, publications, system integrators, distributors, VARS, and more.

Price: \$24.95; Shipping and Handling: \$7.50 in North America, \$12.50 elsewhere.  
CONTACT: Creative Digital Publishing, Inc.; Phone: 415-621-4252; Fax: 415-621-4922;  
E-Mail: hhca@cdpubs.com  
Web: www.cdpubs.com

### Introduction to Microsoft Windows CE for the Handheld PC

This book by Robert O'Hara, (Microsoft Press, 1997) gives a detailed tour of all applications, and includes tips and tricks (more details on page 10). See your local bookstore.

occupied on H/PC: approximately 90 Kb  
Landware, Inc., Attn: Ken Landau; Phone: 800-526-3977 or 201-261-7944; Fax: 201-261-7949; E-mail: sales@landware.com  
Web: www.landware.com

### Proficiency!

Proficiency! is a RPN calculator with business, financial, statistical, scientific, engineering and programming functionality. It provides functional emulation of Hewlett-Packard Company's HP-12C financial calculator, most of the HP-15C engineering/scientific calculator, and portions of the HP-16C programmers' calculator. It comes with a library of preprogrammed functions and input optimized for Handheld PCs' keyboard and stylus.

Price: \$49; Bytes occupied on H/PC: approximately 285,500 Kb  
CONTACT: MVA Software, Inc.; Attn: Mike Vincent; Phone: 714-970-9147; Fax: 714-692-9189; E-mail: m\_vincent@msn.com

## Database

### AllPen Mobile Forms Database

This flat-file database uses the standard database format for Windows CE. Users can define the database on the Handheld PC. The program supports import and export in ASCII tab or comma delimited files, as well as search, sort, and default values. Field types include text, note, number, pop-up menus, radio buttons, and checkboxes.

Price: \$79.95  
Shipping/Handling: \$4.50 first class mail;

Bytes occupied on H/PC: 132 Kb  
CONTACT: Landware, Inc., Attn: Ken Landau; Phone: 800-526-3977 or 201-261-7944; Fax: 201-261-7949; E-mail: sales@landware.com  
Web: www.landware.com

### Z-Flash CE Educational Database

Z-flash turns a Handheld PC into an education tool for teaching vocabulary including Spanish language, medical terminology, or sports trivia. Users can custom-design their own flash cards for learning or to be used as teleprompter for presentations. The database can also be used for data gathering.

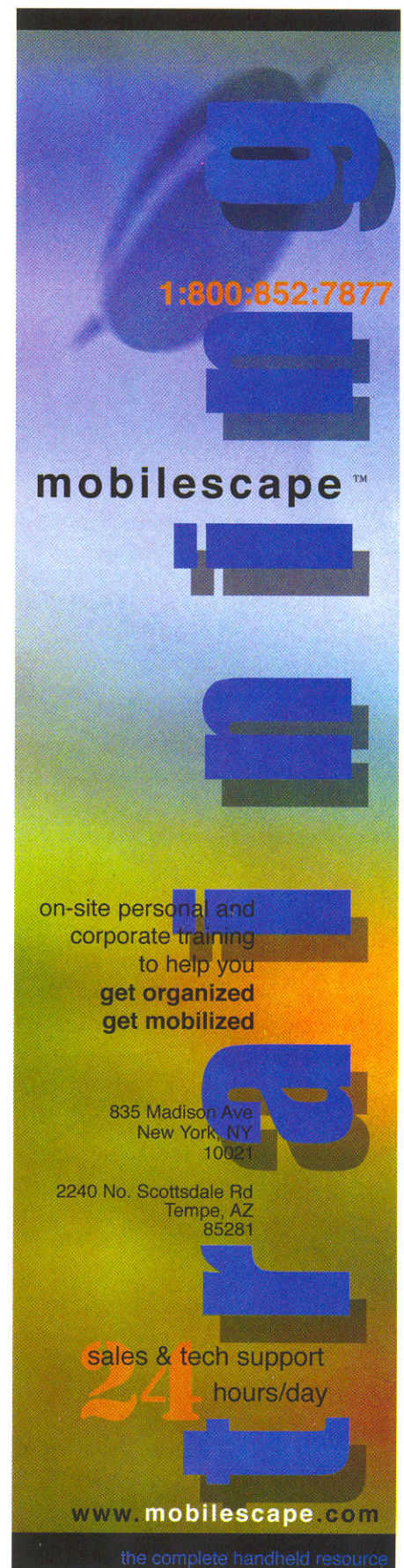
Price: \$59.95  
Shipping/Handling: \$12.50 FedEx, Bytes occupied on H/PC: Approximately 400 Kb  
CONTACT: RuppSoft; Phone: 888-517-7877; 602-941-4789; E-mail: catalog@ruppsoft.com  
Web: www.ruppsoft.com

## Finance

### ExpensePlus

ExpensePlus users can capture their expenses in real time while traveling, then send expense data directly to their employer's custom expense report created in Microsoft Excel running on a Windows or Mac desktop computer. ExpensePlus also includes several report templates for Excel. Demo available at [www.walletware.com](http://www.walletware.com)

Price: \$89; Shipping/Handling: \$5  
CONTACT: WalletWare, Inc.; Phone: 800-640-2068 or 714-262-9380; Fax: 714-262-9381;  
E-mail: sales@walletware.com



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### Quote Ticker Bar 1.0

Retrieves stock information without having to run a browser, via the Internet. The program can be downloaded from Starfire's Website and can be used 10 times before registration is required.

Price: \$20 (includes license for QTB for Windows 95 and Windows NT)  
Bytes occupied on H/PC: under 100 Kb.  
CONTACT: Starfire Software, Inc., Attn: Randy Santossio; Phone: 203-736-9036; Fax: 203-735-4329  
Web: [www.starfire-inc.com](http://www.starfire-inc.com)

### TimeReporter™

A version of this tool has been used by professionals since 1994, and it is now available for Handheld PCs. It supports billing by the hour or fixed fee.

Price: \$119.95  
Shipping/Handling: \$3, Bytes occupied on H/PC: 300 Kb  
CONTACT: iambic Software; Phone: 800-730-5370 or 408-882-0399; Fax: 408-882-0399; E-mail: [info@iambic.com](mailto:info@iambic.com)  
Web: [www.iambic.com](http://www.iambic.com)

### Financial Consultant

This is a financial calculator that supports IRR, FV, 1%, NPV, n, and many more. It is designed for the investment and real-estate professional.

Price: \$39.95  
Shipping/Handling: \$4.50 first class mail; Bytes occupied on H/PC: 40 Kb  
CONTACT: Landware, Inc., Attn: Ken Landau; Phone: 800-526-3977 or 201-261-7944; Fax: 201-261-7949; E-mail: [sales@landware.com](mailto:sales@landware.com)  
Web: [www.landware.com](http://www.landware.com)

## For Developers

### Corporate Connection

Corporate Connection is a development toolkit containing ODBC APIs for creating applications in which users of Handheld PCs can remotely access and update their corporate databases, over telephone, cellular or wireless networks such as ARDIS.

Price: \$250 for the development toolkit and 5-user license.  
CONTACT: River Run Software Group, Attn: Taffy Holliday; Phone: 203-861-0090; Fax: 203-861-0096; E-mail: [info@riverrun.com](mailto:info@riverrun.com)  
Web: [www.riverrun.com](http://www.riverrun.com)

### Dr. DeeBee ODBC driver

This driver allows Handheld PCs to act as ODBC data sources for desktop applications, connecting them to commonly available soft-

ware such as Access, Excel, Visual Basic, Powerbuilder, and Crystal reports. It enables desktop developers to share data with Windows CE without coding to yet another API. The ODBC 2.1 compliant driver resides on the Windows box consuming none of the handheld's memory space.

Price: \$49 (volume discounts available)  
Shipping/Handling: \$10  
CONTACT: Frank Yacano, Syware, Inc., Phone: 617-497-1300; Fax: 617-497-8729; E-mail: [frank@syware.com](mailto:frank@syware.com)  
Web: [www.syware.com](http://www.syware.com)

### Windows CE evaluation and development systems

Eclipse International provides system hardware and software products for the rapid deployment of non-desktop, embedded systems based on Microsoft Windows CE operating system. Eclipse has developed evaluation systems, development systems, training programs and consulting services for Windows CE that will enable Eclipse's customers to create and deploy a wide range of products based on Windows CE operating systems. Eclipse is also a worldwide distributor of OEM licenses for Windows CE.

Price: varies  
CONTACT: Eclipse International, Inc., Attn: Thomas Wong; Phone: 415-691-6555; Fax: 415-428-0292; E-mail: [twong@eclipseint.com](mailto:twong@eclipseint.com)  
Web: [www.eclipseint.com](http://www.eclipseint.com)

### Product Testing For Windows CE

VeriTest is an authorized test site for the "Designed for Windows CE" software logo. VeriTest's Compatibility Lab for Windows CE offers a broad range of compatibility and functionality testing to Handheld PC hardware and software developers.

Price: varies  
CONTACT: VeriTest, Attn: Erik Bowman (compatibility); Andre Thibodeaux (logo); Phone: 310-450-0062; Fax: 310-399-1760; E-mail: [enb@veritest.com](mailto:enb@veritest.com)  
Web: [www.veritest.com/windowsce/](http://www.veritest.com/windowsce/)

### Visual CE

Visual CE provides a visual development environment for the Windows CE operating system. Visual CE allows users to create forms-based applications. The applications can be used to collect, display and modify data on an H/PC. Programmers and others can use Visual CE to create applications on their Windows 95 or NT desktop machine, then download them to their handhelds.

Price: \$299  
Shipping/handling: \$10; Bytes occupied on H/PC: 750 Kb  
CONTACT: Frank Yacano, Syware, Inc.; Phone: 617-497-1300; Fax: 617-497-8729; E-mail: [frank@syware.com](mailto:frank@syware.com)

Web: [www.syware.com](http://www.syware.com)

## Miscellaneous

### 15 Minute SuperCharger

Boost H/PC batteries in 15 minutes with this compact microprocessor-based battery charger/AC Adapter.

Price: \$79  
CONTACT: JJA Microsystems; Phone: 800-765-7770 or 516-328-2254; Fax: 516-328-1198; E-mail: [john@jjjustin.com](mailto:john@jjjustin.com)  
Web: [www.jjjustin.com](http://www.jjjustin.com)

### AstroHTML

AstroHTML astronomy reference in HTML format was designed for handheld PCs running Windows CE and Pocket Internet Explorer. Data includes 1,000 brightest stars (listing stellar magnitude, right ascension and declination), a set of twelve star charts showing the position of the major constellations throughout the year, a glossary of astronomical terms, and 175 links to astronomy-related Websites.

Price: \$25 on diskette; \$20 electronically  
Bytes occupied on H/PC: approx. 320 Kb  
CONTACT: SanSoft; E-mail: [use@webside.com](mailto:use@webside.com)  
Web: [www.pdantic.com/astrohtm.htm](http://www.pdantic.com/astrohtm.htm)

### Chess

Chess is an advanced chess program that enables the novice or expert to play a challenging game. Users can save games and get advice from an online tutorial.

Price: \$59.99  
CONTACT: Purplesoft; Phone: 44 171 383 3277; Fax: 44 171 387 1188;  
The program can be downloaded from mobilesoft's Website.  
Web: [www.mobilesoft.com](http://www.mobilesoft.com)

### HPC Notes

HPC Notes is a notes organizer for Windows CE. When users enter a new note, the program provides them with organization to facilitate later retrieval, including: type, subject, creation and modification date. It is possible to send an e-mail directly from the note editor, as well as import and export text files. Currently available version of HPC Notes supports HS3 processor only and was tested on Cassiopeia A-10 and A-11 (made by Casio) and The Compaq PC Companion (made by Compaq Computer Corporation).

Price: \$29.95  
Bytes occupied on H/PC: 55 Kb. 15-day free trial available by downloading the program from the company Website.  
CONTACT: Cognitive Technology Corporation, Phone: 415-925-2323; Fax: 415-461-4010; E-mail: [ctc@ocr.com](mailto:ctc@ocr.com)  
Web: [www.ocr.com](http://www.ocr.com)



## Connect to the World With the World's Lowest Power Serial Card



### Modems, Printers, Bar Code Scanners... Get the Connection!

CALL to get your free copy of the *Serial Solutions Guide* to maximize the power of your H/PC

#### Your HP/C's Friend

The Socket Serial I/O Card gives your H/PC something every mobile computer needs: **connections!**

The Serial I/O Card adds a high-speed serial port to your H/PC so you can communicate with modems, bar code wands, mag stripe readers, label printers, digital cameras, GPS receivers, diagnostic equipment — you name it!

Plus, Windows CE certification and support for hot swapping make installation and removal a snap.

#### Low Power ...

Connect the Serial I/O Card to your favorite external modem and draw 30 times less power (13 mA vs. 390 mA) than leading PC Card modems. You can extend your H/PC's battery life without sacrificing functionality.

Socket also offers custom configurations for OEMs who need a low power RS-232 or TTL serial interface for vertical solutions. With special cables, the Serial I/O Card can deliver power from the H/PC host to drive serial peripherals.

#### ... High Reliability

Socket's Serial I/O Card is the top selling serial PC Card in the world, the first to receive Windows 95 certification, and the only one preconfigured in the Windows CE registry. You won't have to worry about compatibility hassles.

Socket also offers a ruggedized version of the Serial I/O Card designed to operate in harsh environments. Whatever model of the Serial I/O Card you choose, you're sure to be well connected.



**Socket Communications 1-800-856-9386**

E-mail: [info@socketcom.com](mailto:info@socketcom.com) Web: [www.socketcom.com](http://www.socketcom.com)

### Pocket On-Schedule

Features of this organizer program include unlimited databases, dialing support, Internet access, direct e-mail, call/e-mail logging, contact information templates and customized layouts. Fully compatible with its On-Schedule 97 desktop companion products, as well as other major PIMs and contact managers. It automatically and bi-directionally synchronizes multiple phone books, appointments, and tasks.

Price: \$69.95

Shipping/Handling: \$7; Bytes occupied on H/PC: 250 Kb for MIPS, 210 Kb for SH3  
CONTACT: ODYSSEY Computing, Inc.,  
Attn: Karim Alami; Phone: 800-965-7224 or  
619-675-3660; Fax: 619-675-1130; E-mail:  
[sales@odysseyinc.com](mailto:sales@odysseyinc.com)  
Web: [www.odysseyinc.com](http://www.odysseyinc.com)

### Entente Translator Program

This program offers two-way translation of any sentence or idea. It draws from a 3500 word vocabulary, such as would be known by a third-year language student. It translates between English and 13 other languages, including European, Russian, Arabic, and Asian languages.

Price: \$79.95 with one language.

Shipping/Handling: (included in USA); Bytes occupied on H/PC: 300 Kb

CONTACT: Entente Corp.; 800-409-1701;  
[entente@diac.com](mailto:entente@diac.com)

Web: [www.diac.com/~entente/](http://www.diac.com/~entente/)

### MobileScape

MobileScape mail-order, retail, and on-line stores provide handheld PC software, accessories, and services. MobileScape personnel

evaluate, test, and compare products in-house.

CONTACT: MobileScape; 800-852-7877; Fax:  
602-941-5505; E-mail:  
[catalog@mobilescape.com](mailto:catalog@mobilescape.com)  
Web: [www.mobilescape.com](http://www.mobilescape.com)

### MobileSoft

MobileSoft has established an online channel, through which customers can purchase software for Handheld PCs. A selection of titles can be instantly downloaded.

CONTACT: If you have a product to distribute, call MobileSoft at 408-481-1900.  
Web: [www.mobilesoft.com](http://www.mobilesoft.com)

### TeleType GPS

TeleType GPS displays city points throughout the world, U.S. highways, and interna-



tional shorelines. It plots and traces position. Fleet management and tracking options are also available. The GPS software and mapping program is packaged with a GPS receiver/antenna package.

*Price: \$549 (software and hardware)*  
*Shipping/Handling: \$19.50; (software only \$195/\$10 shipping and handling); Bytes occupied on H/PC: 67 Kb*  
**CONTACT:** TeleType Co., Attn: Ed Friedman,  
 Phone: 617-734-9700; Fax: 617-734-3974;  
 E-mail: [gps@teletype.com](mailto:gps@teletype.com)  
 Web: [www.teletype.com/gps](http://www.teletype.com/gps)

## The Utility Closet CE

This collection of utilities for Windows CE includes converters, timers, mini-notes, and other tools to simplify common tasks. These add-ons were written specifically for Windows CE and work as extensions to the base software provided with Handheld PCs.

*Price: \$25.00 (subject to change),*  
*Bytes occupied on H/PC: 125 Kb (estimated) or Internet download*  
**CONTACT:** Plannet Crafters, Inc.; Phone:  
 770-667-1278; Fax: 770-752-5416; E-mail:  
[info@plannetarium.com](mailto:info@plannetarium.com)  
 Web: [www.plannetarium.com](http://www.plannetarium.com)

## WorldPages.com/CE

This Internet resource supports users of Windows CE by customizing the page view to the size of the H/PC screen when a user dials in. WorldPages is a comprehensive white and yellow pages directory with over 112 million listings, maps, menus and access to directories for dozens of countries.

*Price: There is no charge for users.*  
**Web:** [www.worldpages.com](http://www.worldpages.com)

*For those who may wish to advertise, contact WorldPages, Inc., Attn: Frank Dorf; Phone: 415-536-0680 ext. 15; Fax: 415-536-0681*

# Vertical Markets

## Inspectors

### Builders Square

Builders Square provides software tools for a building inspector to track, plan, and review inspection status and construction permit records for a city or county agency.

*Price: \$750*  
*Delivered on flash card.*  
**CONTACT:** CRW Associates; 619-451-3870;

## Microsoft H/PC Explorer 1.1 Free Update

The new release of H/PC Explorer software for your desktop PC is now available. The new version, H/PC Explorer 1.1, adds support for Outlook 97, Word 97, Excel 97 and Windows NT Workstation 4.0.

Here are a few details: In terms of synchronization, H/PC Explorer 1.1 works the same way as version 1. Now the setup program allows you to choose if you'd like to synchronize with Outlook, Schedule+, or a combination of the two.

File conversion from desktop Word and Excel to Pocket Word and Pocket Excel also works the same as before.

H/PC Explorer 1.1 now enables you to dock H/PCs with PCs running either Windows NT Workstation 4.0 or Windows 95.

The terms of the End User License Agreement for H/PC Explorer 1.1 have been changed to allow customers to install H/PC Explorer 1.1 on any PC with which they wish to dock their H/PC. While Handheld PCs can only establish a partnership relationship with a single PC at a time, Handheld PCs can dock as guests of another PC to exchange files.

If you already own an H/PC, go directly to the download page to download H/PC Explorer 1.1. Select a download site, and click on the link to begin the download and installation process. If prompted, select Open to begin the setup process on your PC. As an alternative, you can choose to save the file and then, once fully downloaded, click on it to initiate the setup process.

Get your copy of H/PC Explorer 1.1 On-line:  
**Web:** [www.microsoft.com/windowsce/hpc/software/hpcexplorer.htm](http://www.microsoft.com/windowsce/hpc/software/hpcexplorer.htm)

*E-mail* [Chris@crwassoc.com](mailto:Chris@crwassoc.com)  
**Web:** [www.crwassoc.com](http://www.crwassoc.com)

## Medical

### PocketChart™

PocketChart offers a full-featured electronics medical record for Windows CE. PocketChart allows physicians and home care providers to collect vital patient data and access medical information at the point of care with seamless integration to the desktop. The package includes templates, software, care plan and template editor.

*Price: \$995 software only; annual support and upgrade \$149. \$1144 with everything.*  
**CONTACT:** PHYSIX, Inc., Attn: Andrea Gatz; Phone: 800-749-2585 or 713-797-1199;  
 Fax: 713-794-0855 ; E-mail:  
[pocketchart@physix.com](mailto:pocketchart@physix.com)  
**Web:** [www.physix.com](http://www.physix.com)

## Retail

### Bestware Retail Product Verification System (P.V.S).

The Mobile Retail Store Audit System includes merchandising activities and manufacturer surveys. Users can mask out unauthorized items by retail chain and prioritize individual products. Optionally, the system

allows input of data by department. The program provides schematic verification, including text messages for goals and instructions, and handles individual store product codes. Upgrade or mix and match with Windows 95/NT version, using the same data as the product running Windows CE.

*Price: call vendor. Host system available now.*  
*Bytes occupied on H/PC: 60 Kb plus data.*  
**CONTACT:** Bestware Computer System, Inc.;  
 Phone: 805-296-4239;  
 E-mail: [dcarl@earthlink.net](mailto:dcarl@earthlink.net)  
**Web:** [www.home.earthlink.net/~dcarl/](http://www.home.earthlink.net/~dcarl/)

## Sales

### RW3 CE

Provides field sales automation solution. Field personnel use RW3 CE for capture of sales and merchandising conditions. E-mail, scheduling, contact management and Internet access round out the field product. RW3 allows managers to access reports via desktop or fax-on-demand. Integrated E-mail Post Office included.

*Price: Varies*  
**CONTACT:** RW Information Technologies Corporation, Attn: Bruce Nagle; Phone: 800-444-5793; Fax: 510-355-0897;  
 E-mail: [bnagle@rw3.com](mailto:bnagle@rw3.com)  
**Web:** [www.rw3.com](http://www.rw3.com)



# Freeware/ Shareware

## File Transfer

### Scotty

Scotty, a graphical FTP client for Windows CE, allows you to connect to any FTP server and upload or download files. One version is for SH-3 processors (Casio, Compaq), a second version for MIPS processors (NEC, Philips Velo).

Type: Shareware

Price: \$29.95 US

CONTACT: Ruksun Software Technologies,  
Pvt.; Phone: 91-212-678286 or 91-212-678288;  
Fax: 91-212-627264; E-mail: [info@ruksun.com](mailto:info@ruksun.com)  
Web: [www.corus.com/wince/](http://www.corus.com/wince/)

## Finance

### Personal ATM

Allows you to take your banking on the road. Download your financial data from your desktop computer to your H/PC. Later, transfer data back to your desktop and update your files. Uses QIF file format on the desktop, the format that is imported and exported by Quicken and Microsoft Money.

Type: Shareware

Price: \$29.95 US (check or money order);

CONTACT: Bruce Brown, AnyWare Consulting, PO Box 61632, Santa Barbara, CA 93111

Web: [users.aol.com/anyware/wce/patm/default.html](http://users.aol.com/anyware/wce/patm/default.html)

## Games

### Block Force

This is a Windows CE version of the famous falling bricks game, Tetris. Keep the blocks from piling up to the top by moving blocks to the right and left (and rotating them) as they fall.

Type: Freeware

CONTACT: Ruksun Software Technologies,  
Pvt.; Phone: 91-212-678286 or 91-212-678288;  
Fax: 91-212-627264; E-mail: [info@ruksun.com](mailto:info@ruksun.com)

## One-Stop Source For Windows CE Freeware and Shareware

Visit *Handheld PC Magazine's* Website ([www.thaddeus.com](http://www.thaddeus.com)) and download any of the distributable Windows CE freeware and shareware that we mention each issue. Alternatively, you can subscribe to "PowerCD: The Handheld PC Magazine Supplement." Each issue's PowerCD contains the freeware and shareware mentioned in that issue. Also, PowerCD includes advertisers' Websites and the content of the current *Handheld PC Magazine* that you can read using your H/PC or desktop Web browser.

<http://www.thaddeus.com>



All freeware and shareware mentioned here can be downloaded from the *Handheld PC Magazine* Website: [www.thaddeus.com](http://www.thaddeus.com)

Web: [www.corus.com/wince/](http://www.corus.com/wince/)

### Space Invaders

The Windows CE version (by Scott Ludwig) of the popular arcade game.

Type: Freeware.

Web: [homepages.enterprise.net/craig/hp c/invaders.zip](http://homepages.enterprise.net/craig/hp c/invaders.zip)

### Pocket Jongg

A strategy game, related to Taipei or Mahjongg, but following different rules.

Type: Shareware.

Web: [www.c-labs.com/clabs/pocketJongg/default.asp](http://www.c-labs.com/clabs/pocketJongg/default.asp)

mobileIRC™, extends the power of Internet Relay Chat (IRC) to users of Windows CE.

Price: \$24.50 each or \$39 for both

CONTACT: AdageUS; Phone: 203-230-9472;

Fax: 203-248-0042; E-mail:

[support@adageus.com](mailto:support@adageus.com)

Web: [www.adageus.com](http://www.adageus.com)

### TelnetCE

The first Telnet client for Windows CE. Allows two computers to connect to each other.

Type: Freeware

CONTACT: Ruksun Software Technologies,

Pvt.; Phone: 91-212-678286 or 91-212-678288;

Fax: 91-212-627264; E-mail: [info@ruksun.com](mailto:info@ruksun.com)

Web: [www.corus.com/wince/](http://www.corus.com/wince/)

## Internet

### mobileNews™ and mobileIRC™

mobileNews allows users to keep up with USENET news while mobile. It supports the NNTP standard, multiple news servers, integrated e-mail and address books, and server authorization.

## Miscellaneous

### Martin heller's egg timer

Dr. Martin Heller, Senior Contributing Editor and Programming Windows columnist for *WINDOWS Magazine* (and the author of half a dozen PC software packages), has released the Freeware Egg Timer. Egg Timer



is a simple timer application that can be set to give an alarm varying from 1 second to 99 hours. It allows you to have sounds for the alarm, be interrupted with a message, and/or see a flashing light. There are versions for SH-3 and MIPS, and a combined version that also includes the source code. There is no documentation file, so install the correct timer .exe for your H/PC (SH-3 for Casio, HP, Compaq; MIPS for NEC and Philips) in the root directory of your device. If you don't, you may get error messages if you set alarms without dialog boxes.

Type: Freeware

Web: [www.winmag.com/people/mheller/wincepro.htm](http://www.winmag.com/people/mheller/wincepro.htm)

## Wallpaper and PhoneSounds

This file offers assorted backgrounds for the Handheld PC desktop, including animals, footsteps, instruments, star wars, and HPC. Phone sounds are wave files of the tones that telephones make.

CONTACT: *ddm europe*

Web: [www.ddmeurope.com/hpc/](http://www.ddmeurope.com/hpc/)

## FREE MICROSOFT SOFTWARE

### Downloadable from Microsoft's Website

#### MS Pocket Automap Streets

With Pocket Automap Streets, users enter the address they're looking for, and get a detailed street map showing you the precise location requested. The program comes with maps of 40 selected cities in the United States. Go to Pocket Automap Streets download page.

Web: [www.microsoft.com/automap/pstreets/](http://www.microsoft.com/automap/pstreets/)

#### Pocket Internet Explorer

Pocket Internet Explorer supports World Wide Web browsing. Now, version 1.1 has more features including security, cookies and caching. Go to Microsoft Pocket Internet Explorer download page.

Web: [www.microsoft.com/windowsce/hpc/software/mspie.htm](http://www.microsoft.com/windowsce/hpc/software/mspie.htm)

#### Power Toys (includes Remote Control)

These small programs are designed to make Handheld PCs more personal and more convenient. Use Remote Control to see and control a Handheld PC from a desktop computer. Create pictures and edit images with Paint. Use Cascading Menus for file and folder access via cascading and scrolling menus.

Three new sound schemes are now available including Analog, Metallic, and Organic. Mute turns off all sounds with the tap of a taskbar button. Personalize the H/PC desktop with Arcade, Argyle, Cars, Castle, Chitz, Concrete, Honey, Squares, and Thatch bitmap tiles. Go to Power Toys download page.

Web: [www.microsoft.com/windowsce/hpc/software/powerr.htm](http://www.microsoft.com/windowsce/hpc/software/powerr.htm)

#### Handheld PC File Converter

This program converts files from a Handheld PC to your desktop or laptop PC without using H/PC Explorer. Convert files in place or convert and copy to a specified location, such as a PC storage card. Go to Handheld PC File Converter download page.

Web: [www.microsoft.com/windowsce/hpc/software/convertr.htm](http://www.microsoft.com/windowsce/hpc/software/convertr.htm)

## Patches

### Service Pack 1

CASIO and Microsoft discovered a problem with some of the earlier CASSIOPEIAs, and Casio is providing this service pack program to improve the power management feature on the CASSIOPEIA (Models A-10 & A-11). Even though the CASSIOPEIA power is turned off, a software problem may prevent the unit from properly entering the standby mode, and some circuits may still operate. The Service Pack corrects this problem.

Type: Freeware.

Web: [www.casiohpc.com/hpcsrvpk1.html](http://www.casiohpc.com/hpcsrvpk1.html)

## Phone Dialing

### PhoneTone

PhoneTone for Windows CE generates TouchTone™ sounds from a Handheld PC, turning the H/PC into a portable speed dialer. The software allows users to retrieve phone messages when at a rotary phone or overseas. It will dial numbers from a contacts

database, or from those entered via the H/PC keyboard or onscreen keypad.

Price: \$20 US

Shipping/Handling: \$3 standard mail. Bytes occupied on H/PC: 30K

CONTACT: *Ilium Software*; Phone: 888-632-5388 or 313-973-7761; Fax: 313-207-9358; E-mail: [info@iliumsoft.com](mailto:info@iliumsoft.com)

Web: [www.iliumsoft.com](http://www.iliumsoft.com)

## Pocket Dial

This program, by Tony Jones and Steve P. Miller, integrates your contacts database with touch tone dialing via your H/PC's speaker. Simply hold the receiver of your phone near your H/PC's speaker, and your H/PC will generate the tones needed to dial. Features include speed dial and customizable prefix rules (long distance, area code, access numbers, etc.).

Type: Freeware

CONTACT: *Thaddeus Computing*

Web: [www.thaddeus.com](http://www.thaddeus.com)

## Programming

### miniBasic

miniBasic is a small, primitive BASIC that runs on Windows CE Handheld PCs.

Type: Freeware

CONTACT: *B&B Systems*

[bnbweb@mindspring.com](mailto:bnbweb@mindspring.com)

Web: [www.mindspring.com/~bnbweb/](http://www.mindspring.com/~bnbweb/)

## Utilities

### FreeMem

This program gives a running total of the free file and program memory (in KBytes). The task bar can give a constantly visible indication of your free space. Values are updated every eight seconds.

Type: Freeware

CONTACT: *Surerange Analysis Limited* P.O. Box 257, Guildford, Surrey, GU1 4FP, United Kingdom; E-mail: [surerange@dial.pipex.com](mailto:surerange@dial.pipex.com)

Web: [www.demon.co.uk/sureanal/download.html](http://www.demon.co.uk/sureanal/download.html)

## Pocket UnZip

This program, by Steve P. Miller, brings support for the popular ZIP file format to the Windows CE platform (it also runs on Windows NT). You can extract, test, or view any ZIP file. Pocket UnZip can also help you maximize your PCMCIA flash card storage. Just ZIP up all your data files into a single compressed ZIP file and store it on your flash card. Then use the Pocket UnZip to view those files directly from the ZIP files themselves.

Type: Freeware

CONTACT: *Thaddeus Computing*

Web: [www.thaddeus.com](http://www.thaddeus.com)



# Run Your Desktop PC from your Handheld PC with pcANYWHERE CE

*pcANYWHERE lets you control desktop PCs running Windows 95 or Windows NT 3.5/4 from across the room or around the world.*

By Don Hergert

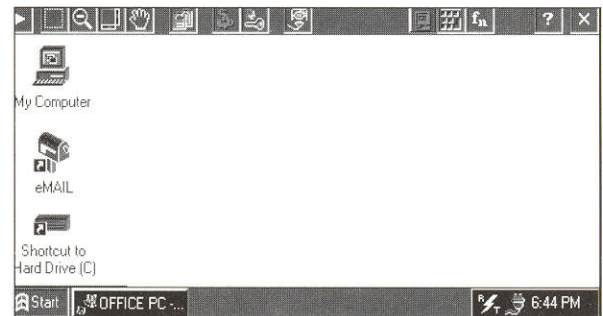
I did an interesting thing this morning at work. I called my computer at home and beat it in a game of Reversi. While winning the game was a significant accomplishment for me, more important was the fact that I was able to run my home computer from the office using a Cassiopeia A-11 Handheld PC running Symantec's new pcANYWHERE CE remote control software. Over the last few months I have been fortunate enough to be a beta tester for this program. I am thoroughly impressed with it.

I'm a big user of communication gadgets. In my day work I manage and develop on a large scale a UNIX-based system for a prominent medical center in Southern California. This system is the centerpiece for 25 or so other systems throughout the medical center. If this system has problems, they need to be fixed before the absence of data flow affects patient care. I'm on call all the time, frequently even on vacation, a situation that is not at all unusual at this level in the health

care industry.

This is where my appreciation for handhelds comes from. While at home, I can use my desktop system to interface with the medical center's UNIX system and fix problems. Away from home, I've found that the more powerful handhelds and palmtops provide sufficient communication capabilities to do my work from just about anywhere.

Though the applications provided as part of Windows CE are powerful, it seems that they are really only intended to serve as compact, portable assistants to their office suite counterparts on the desktop. This is facilitated by the H/PC's communication capability as it provides a path for interchange



This Handheld PC screen shows pcANYWHERE running a Windows 95 desktop PC. A toolbar at the top of the screen contains the tools needed to maneuver around the desktop PC's screen that is only partially displayed here on the Handheld PC.

of data between both machines. In contrast, Symantec, with the introduction of pcANYWHERE CE, has provided an effective tool that allows us to literally reverse those roles and make the Handheld PC master of the desktop PC.

## pcANYWHERE — a remote control package

For those not familiar with pcANYWHERE, it is a software package that lets you use one computer to remotely control another. pcANYWHERE is available for DOS, Windows 3.x, Windows 95, Windows NT, and now for Windows CE platforms. Both com-



### ABOUT THE AUTHOR

Don Hergert lives with his family in Southern California and is a senior programmer analyst at Loma Linda University Medical Center. His specialty area is data communications and enterprise interface engine technologies in the health care setting. He has been a user of handheld computers since 1980.



puters must be connected together via telephone lines and modems (or directly cabled together), and each needs to be running either the Host or Remote part of the software package. The computer doing the controlling calls up the other computer, and can run programs and access data and peripherals on it.

The pcANYWHERE CE version of the program lets Windows CE H/PC users remotely control a PC that is running Windows 95, Windows NT3.5 or Windows NT4. Although you cannot transfer files back and forth with pcANYWHERE CE, you can cut and paste information to and from the computers.

## Tools for maneuvering around a desktop's screen

pcANYWHERE displays the entire screen of the desktop on the Handheld's much smaller screen. This potentially could make viewing a desktop PC's much larger screen difficult. Fortunately, Symantec has devised a clever and effective series of tools for moving around the desktop PC's screen and enlarging a portion of it. This makes it possible to fully control any application running under Windows 95 or Windows NT, almost as easily as it would be to do so on the full sized PC. The convenience of being able to remotely access and control another PC from a device as small and easy to carry as an H/PC far outweighs any slight inconvenience in maneuvering around the desktop PC's screen on the H/PC.

The following shots illustrate the three different toolbars that can be selected:

The tools are placed on a toolbar at the top of the screen. The toolbars can also be hidden to provide more space for the H/PC to display the desktop PC's screen. Among the buttons included on the toolbars are the following:



The scale button fits the controlled PC's complete screen into the H/PC's screen,



The zoom button lets you navigate through the fitted screen and choose an area to zoom into,



The scroll button lets you turn on scroll bars for navigating through a zoomed screen,



The hand button lets you enable a drag-scroll tool which allows you to navigate through the zoomed screen by dragging the whole screen around.

Together these tools allow the user to get around the controlled PC's screens with very little effort.

In addition to the toolbar for screen navigation, there are four more buttons and two alternate toolbars that provide keyboard and special functions equivalent to that of the PC being controlled. They include the ability to send a (CTRL)+(ALT)+(DEL) login sequence for Windows NT4 systems, to transfer text through the two PCs clipboards, to reboot the controlled PC, to exit pcANYWHERE CE, and to emulate function keys F1 through F12 and special function keys like Num Lock and Print Screen.

## Making the initial connection

Installation of pcANYWHERE CE is a smooth, two-part process. Once setup is started, both the Windows 95 / Windows NT4 host portion and the Windows CE remote portion of the software are loaded onto the desktop machine. Once the host portion installation is completed, the remote portion can immediately be loaded directly onto the Windows CE machine, or can be loaded at a later time. Either way, the installation of the Windows CE remote part of pcANYWHERE CE uses H/PC Explorer (which must have been previously installed) to automatically install the right CPU version for the attached H/PC.

After installation, pcANYWHERE CE must be configured on both machines for the expected type of connection that will be made. The connections can be made using various types of direct or modem connections, or using a TCP/IP PPP connection on a Windows NT4 desktop system. Additionally, the desktop machine can be configured to bring up the host portion of the software when turned on, and can be configured to reboot itself when a remote control session is ended. After the configurations are complete, the desktop system is left with the host portion of pcANYWHERE CE running, waiting for a connection to be made.

While the H/PC's relationship with a desktop PC is probably the smoothest example of this kind of communication in the industry today, it can still be very challenging. A number of the underlying communication methods used in Windows CE are fairly complicated to work with, and are made even more so because of a few "undocumented features" which exist within this communications framework. Problems with setting parity and word length, and problems associated with the H/PC "forgetting" previous settings when devices are changed are a few examples.





Every communication-related program on the platform, including pcANYWHERE CE, uses this communication framework. Probably the most challenging phase of using pcANYWHERE CE is the initial connection. To illustrate this and the remaining aspects of using pcANYWHERE CE, I'll further describe the Reversi exercise I began this article with.

## Dialing up my home computer

To play Reversi, the first thing I had to do was to dial up my home computer. Normally this would just involve attaching the phone line to the modem and telling pcANYWHERE CE to call home. There are, however, a number of problems associated with trying to dial out from my office. Because I am an employee of a large institution, I have to use a modem pool to dial out from my desktop, which must be running special non-Windows CE software to access it. I can't use the modem pool with my Handheld PC.

Another obstacle was our digital phone system. Many large organizations use them. Even though they use RJ-11 jacks, a digital phone system applies significantly more voltage to those lines. That means that if you attach a modem designed for a regular analog system to one of these lines, you'll most likely jolt it into history.

One of my favorite communication gadgets is a high-speed acoustic coupler. This lets me use a modem with just about any phone. The one I carry (a Phone Coupler II from Black Box) can support communication rates up to 14.4kbps. Pay phones, hotel phone systems, international phone systems, old non-RJ-11 phone systems -- all are usable with this device. I've also been known to attach it to my cellular phone and use this "kludge" to modem into work from the mountains.

Another favorite gadget of mine

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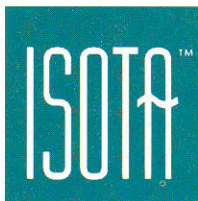
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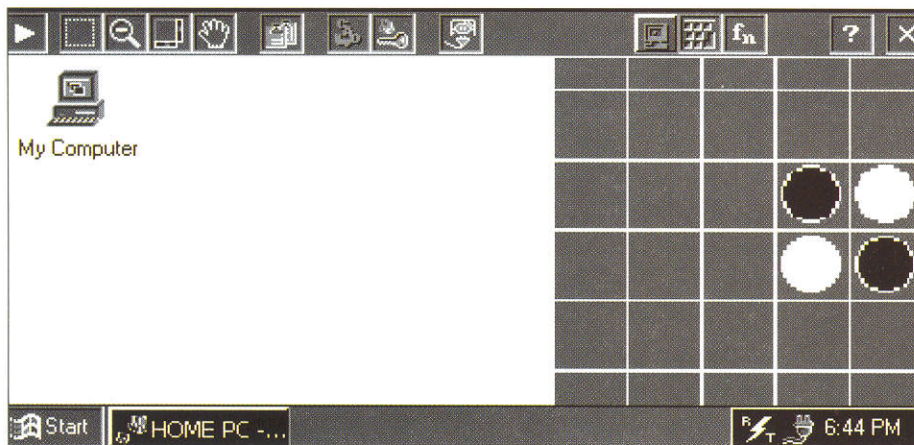
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Tap on the zoom icon on the toolbar and the outlined area is zoomed to fit the entire screen, making it easier to read.

is an old battery-powered 14.4kbps pocket modem. While I do have a PCMCIA modem, I only use it with the AC adapter connected. Even the best PC Card modem will eat batteries on handhelds and notebooks, so when there is no external power around, the pocket modem goes to work. It is also handy when I don't want to pull my 10 Mb flash disk from the PCMCIA slot on the H/PC, which is happening more and more lately.

To get around the modem-frying phone system at my office, I hooked up my Cassiopeia to my pocket modem, to my acoustic coupler, to my office phone's handset.

I had to manually dial the phone, but other than that it worked well. (Normal analog phone systems can auto-dial with this hardware combination.) I was able to maintain a stable connection with the remote connection being successfully made through the two modems' auto baud mechanism at 14.4kbps, with the H/PC-to-modem connection on my side set at 4.8kbps, no parity, 8 bit words and hardware handshaking. (Most high-speed modems automatically select baud in their connection to the modem on the other end - unless this feature is turned off - making the speed that is set on the PC really just the speed of communication between the computer and the modem. Buffering and handshaking take care of the differences between

the two speeds.)

The H/PC and the pocket modem also were attached to their AC adapters so battery power would not be a concern. I also had to turn off error correction on the H/PC using the AT/N0 modem command in the pcANYWHERE CE communication setup on the H/PC, having previously turned it off using a similar mechanism on my desktop machine at home.

After the manual dialing connection was made, I was prompted for and entered my user name and password, exactly as I had dictated them during the initial setup of pcANYWHERE on my desktop PC. Once that was completed, the H/PC screen cleared, and I was treated to a very small, yet complete copy of my home desktop PC's SVGA screen, with a light outline of a box over a portion of that screen, indicating the H/PC's normal 480 by 240 pixel display capacity. I tapped that outline, and in a second I was in that exact portion of the desktop PC's screen, zoomed to a point where everything was very readable.

Then I maneuvered through my desktop PC's menu system, brought up Reversi, and played the game, using the stylus on the H/PC as pcANYWHERE CE effectively emulated mouse positioning and clicking. And, to my own amazement, I won.

After taking time to savor the

moment, I pressed the disconnect button in the toolbar, and began putting everything away.

## A wish list

While pcANYWHERE CE is great, there are still a few things I'd like to see in it. Even though Windows CE provides terminal emulation through its Terminal Connection, its emulation is missing a number of important VT100 and ANSI terminal characteristics which are really necessary for accurate screen displays. Worse, it offers no file transfer. I'd really like to see a complete terminal emulator embedded in pcANYWHERE CE, and I'd also like to see file transfer possible. Maybe next version.

Before I bought a Windows CE H/PC, I was using an HP 200LX palmtop computer. It is an amazing machine, too. But my primary reason for having any portable is to provide a way to communicate with my work computers. And, my work computers are changing. Probably within a year, or maybe two, the UNIX-based interface I manage at work will be running under Windows NT. Until Windows CE came out, it looked like my only option was a full-blown notebook PC. I wasn't looking forward at all to this change. Now, with pcANYWHERE CE, I am not only ready, but I'm anxious for this change to occur. I'm very thankful to Symantec for putting this product together.

The complete pcANYWHERE CE package is available with both the Windows CE remote software and the Windows 95/NT3.5/NT4 mini-host software for (US) \$79.95. Users who already own pcANYWHERE 32 version 7.5 or higher can purchase the pcANYWHERE CE Windows CE remote software separately for (US) \$39.95. Symantec can be reached in North America at 800-441-7234, or on the Web at <http://www.symantec.com>.



# Choosing the Correct Batteries for Your Handheld PC

*Your choice of batteries will depend on your H/PC and workload. These tips will help you decide what you need for main batteries and your spares.*

By David Shier

There are literally dozens of things that we use every day that are at once both extremely simple and incredibly complicated. We rarely think about the complexities that allow us to press a few buttons on a telephone and talk to someone on the other side of the world. We turn the key to start our car's engine without a thought about the thousands of parts that make up today's fuel-injected wonders.

This is true of batteries, and especially true of rechargeable batteries, which have a chemistry so complex that there's no definitive information available to tell you exactly what takes place inside as you charge and discharge them.

Fortunately, we don't need to understand the chemistry in order to use batteries effectively. But, just as knowing a little about how your

car works can help you get the best performance out of it, knowing a little about your batteries can help you get more performance out of your Handheld PC — especially when using high-power PC Cards.

## Alkaline batteries

There are currently four types of batteries available for use in the Handheld PCs. Of course the most common are alkaline, which are

very inexpensive to purchase, but are single use (primary cells.) That is, when they are drained, you just throw them away. The exception is the renewal rechargeable alkalines. However, these do not perform well in the Handheld PCs due to their internal resistance (more on this subject later).

## The Eveready Energizer Lithium L91

The second type of battery is the Eveready Energizer Lithium L91. These are the highest capacity AA cells available, but like alkalines, are single use. The Lithiums make great spare batteries since they have about a 10-year shelf life. They cost about four times the price of alkalines, and last only about three times longer.

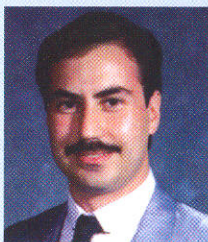
## NiCd and NiMH rechargeables

The third and fourth types of batteries are rechargeables: NiCd and NiMH. Note that not all Handheld PCs can recharge batteries internally (see sidebar next page).

NiCd batteries are more readily available but have the lowest capacity of any of the types discussed here. That means you'll have to be changing and/or charging batteries more often. NiMH have higher capacity, but not all Handheld PCs recommend using them.

## Battery life

To understand battery life, you need to know some characteristic parameters of batteries.



### ABOUT THE AUTHOR

David Shier is a former software engineer and marketing/sales director in the electronics industry. He is now the President of Shier Systems & Software, Inc., which develops and markets products and applications for the handheld computer market. Shier is a regular contributor to the HP Palmtop Paper and Handheld PC Magazine. He can be reached at: Phone: 805-371-9391; Fax: 805-371-9454; e-mail: [info@shier.com](mailto:info@shier.com); Web site: <http://www.shier.com>



Voltage is the parameter that is the most used, and the most misunderstood. Voltage is a measure of electrical pressure — not capacity. Think of it this way: If two people are asked to push equally-loaded wagons up a big hill, one may be able to push harder, but may get tired sooner. It's the same with batteries: A higher starting voltage is not necessarily an indication of higher capacity. And just like an athlete who suddenly "burns out," some types of batteries may start out with higher voltages, but as they near the end of their lives they lose power very quickly.

Alkaline AA batteries start out with a voltage of about 1.5 volts per cell, or a total of 3.0 volts. Alkalines are unique in that their voltage drops at a slow and relatively regular rate as you use them. Knowing this rate and the present voltage of the battery makes it possible to determine remaining power. Handheld PCs have built-in hardware to measure the voltage of the batteries, as well as the software to estimate the remaining power of the batteries.

Rechargeable batteries start out at around 1.2 to 1.4 volts each, or 2.4 to 2.8 for a pair. However, unlike alkalines, they maintain an almost constant voltage for most of their useful life, then the voltage drops quickly at the end.

Also, the starting voltage for rechargeable batteries seems to vary greatly from pair-to-pair, even for batteries from the same manufacturer. This is a very important point, since many users of rechargeable batteries tend to be overly concerned with the maximum voltage they get when they charge their batteries. But the final voltage value doesn't provide a reliable indication of how long they will last before they start their rapid fall.

Battery life is measured in milliampere-hours (mAh). Amperes (or simply amps) are a measure of the rate of electrical current flow, so multiplying the amount of electrici-

ty that flows by the amount of time that it's flowing gives you a measure of the total volume of electricity used. (If electricity was a liquid, then amps would be liters-per-hour, so an amp-hour would be equivalent to a liter-per-hour flow rate for one hour, or one liter of volume.) Since one amp is a very large

amount of current relative to the consumption of the Handheld PC, the measurements are in thousandths of an amp (mA).

Typical alkaline batteries have a total capacity rating of 2500mAh. The ratings assume that you are using the batteries until they drop below about 0.9 volts each.

### Using rechargeable batteries in your Handheld PC

The following is a brief look at how each of the vendors support the use of rechargeable batteries with their Windows CE offerings:

#### NEC MobilePro

The NEC MobilePro does *\*NOT\** support recharging batteries internally. NEC sells a NiMH battery and an *\*EXTERNAL\** charger for the MobilePro.

#### PHILIPS Velo

The Velo 1 supports NiMH batteries including internal charging. The NiMH battery is recharged when the Velo 1 is inserted into the docking station.

#### CASIO/COMPAQ

An unusual design for handling rechargeable batteries has been chosen by Compaq/Casio. When you remove the battery door, the batteries come out with it. Looking at the battery compartment, you will see a second set of contacts in the H/PC. This set of contacts are used for recharging. However, the battery door/holder does not have the corresponding set of contacts. Therefore, you can't charge normal AA NiCds inside these machines. Compaq/Casio sell a rechargeable battery which is encapsulated in a special battery door. This NiCd battery pack replaces the standard battery door and has the necessary contacts for recharging.

In general, the Compaq/Casio approach to power connections is both unique and complex. The external power supply is connected through the same connector as the serial port. However, a single AC adapter/serial cable is not available. Instead, the AC adapter is supplied with a plastic housing that "splits" the single connector into two: One for the AC and one for the serial cable. This module snaps in place on the side of the H/PC and covers the IR port, so you are not able to use the IR port when running on AC power. Also, the need for this module greatly adds to the price of the AC adapter set, making the street price about \$70.00.

#### HITACHI/LG Handheld PCs

The Hitachi/LG Electronics H/PCs use NiMH rechargeable batteries. Hitachi provides a pair of 1200mAh NiMH batteries with the H/PC.

#### HEWLETT-PACKARD Palmtop PCs

The HP 300LX and 320LX support charging standard NiCd batteries in the palmtop but do not support NiMH batteries.

The issue for HP appears to be that NiMH batteries have a faster drop off in voltage than NiCds. Since HP designed the 300/320LX for NiCds, they are worried about data loss due to the batteries dying without adequate warning for the backup circuit to do its job. In the interest of science, I will try to charge NiMH batteries anyway, and will report the results in a future article. In the meantime, I suggest that you follow the recommendations of the maker of your H/PC regarding rechargeable batteries.



However, the Handheld PCs will not operate on batteries that low. This means that you will not get the full 2500mAh from the batteries (although you could take them out of the Handheld PC and use the remaining life in something else that can run the batteries to lower voltages).

Most NiCd AA batteries have a capacity rating of only 500 to 600mAh. High capacity NiCds, such as the Radio Shack Hi Capacity NiCds or the GP brand that we sell, are rated at 850mAh. NiMH AAs are available in capacities of 1200mAh from my company, Shier Systems & Software.

While the ratings listed for rechargeable batteries seem substantially lower than for alkalines, remember that the rechargeables maintain their voltage for more of their rated life than alkalines do.

## Work load

Another very important point is that rechargeables tend to perform much better under heavier workloads than alkalines. Therefore, when using modem cards or certain flash memory cards in your

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Handheld PC — which tend to require short surges of high power — you may find that alkaline batteries will not be up to the task unless they are very fresh, whereas the

lower-capacity rechargeables can support these cards even as they get close to needing a charge. The net result is that you may find that you get close to the performance of alkalines from your rechargeables.

The issue of how the work load affects the useful life of batteries is even more pronounced when we compare alkalines to the Eveready Lithium batteries. The specification for the Lithiums rates them at only 2600mAh. This is almost identical to the alkaline rating, yet we know that they tend to last much longer in the Handheld PCs. So what's going on here?

It turns out that there are two factors working in the Lithiums' favor. The first is that they have a flat discharge curve — much like that of the rechargeable batteries. This again allows them to work in the Handheld PCs for more of their rated life than the alkalines can. The second factor is that they work far better under heavy work loads than

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alkalines do.

Looking at Eveready's specification sheets, and making some assumptions about the typical draw of a Handheld PC using a 14.4kbps modem, we find that the Lithiums should last for about 12 hours of steady use, whereas the alkalines only last about four hours. However, if we compare their lives when used to maintain the memory of a Handheld PC turned off in a desk drawer, we find that they both should last about the same three months!

## Different brands, different characteristics

It is interesting to note that different brands of alkaline batteries can have different chemistries, and therefore very different discharge characteristics. For example, Duracell batteries operate very poorly with heavy loads. These batteries have a capacity rating of 2450mAh, which is very close to that of the Eveready brand. In a Handheld PC without any accessories, they may provide similar performance as compared to other brands. However, you may get the "low battery warning" almost immediately when the Handheld PC is used with modems or flash cards. The Rayovac Renewal (rechargeable alkaline) batteries also perform poorly under high loads, and we don't recommend them for use with PC Cards in the Handheld PC.

This shows that the more you use your Handheld PC, especially with PC Cards, it's important to choose your batteries carefully to get the best performance.

## My recommendation

At Shier Systems & Software we strongly recommend to our customers that they get a pair of high-

capacity rechargeable batteries as their primary power source for the Handheld PC. Many times, I'm told that rechargeable batteries seem to be too much of a bother. Most H/PC users forget, or simply never knew, that they can charge the batteries right in the Handheld PC.

## Rechargeables a bad choice for spares

Note that rechargeable batteries don't make good spares. Rechargeable batteries tend to discharge themselves much faster than non-rechargeables. Of course, this is less of a problem, since you can simply recharge them. However, NiCds can lose about 10% of their capacity in less than a month and be basically useless in less than three months. NiMHs have an even greater rate of self discharge — losing almost half their capacity in the first month! This is why we don't recommend rechargeable batteries as spares, since by the time you need them, they may be as dead as the ones you need to replace. As spare batteries, we recommend the Eveready Lithiums. They have the best shelf life.

## Can batteries remember?

An article which discusses rechargeable batteries wouldn't be complete without a few words about "memory." This is the term used for the reduction in capacity seen when you don't completely discharge the batteries before recharging them.

What is typically called the "memory effect" is really a function of a host of sins, most of which have nothing to do with memory. Almost all premature failure of rechargeable batteries can be linked to overcharging, heat, or reverse voltage due to over-discharging. Lately, a lot of people have been saying that the "memory effect" does not exist at all. This is not completely true, but

clearly makes the point about how little information is available about battery chemistry.

One cause of rechargeable batteries exhibiting "memory" is the formation of large crystal cadmium. The smaller the crystal structure, the greater the energy transfer. However, with time, or extremely slow charge rates (long trickle charging) the crystal structure of the plates inside grows larger (like growing sugar crystals into "rock candy") and the cell appears weaker. Fortunately, this can be corrected by simply discharging the batteries (without shorting them out) which will break up many of the large crystals and allow new, smaller ones to form during the next charge.

## Don't overcharge

On the other hand, overcharging batteries can cause permanent damage. Heat is the enemy of batteries. When you have fully charged a cell, but continue to pump energy into it, the energy must go somewhere. Where it goes is into the generation of heat. When you heat the cell by overcharging, you can change the chemical properties and lower the output voltage, thus reducing the cell's useful life. Even if you don't generate much heat, such as when you overcharge for long periods with a trickle charger, you still reduce the useful range of the batteries as noted above.

As a final endorsement of rechargeable batteries, I want to remind you about the price we all pay when we throw away all those alkalines. Not only are we throwing away money, but we're also contributing to the waste in landfills. While most alkaline battery manufacturers have eliminated toxic chemicals such as mercury from their formulas, using rechargeables greatly reduces the burden on the environment from our use of these electronic wonders we call Handheld PCs.



# Handheld Wisdom

*Using the Handheld PC and Windows CE operating system to increase your personal effectiveness*

By Carol de Giere and Rich Hall

## Recurring appointments help show you care

Can a computer increase someone's compassion? Handheld PC computer uses can schedule recurring weekend time for father-son activities, enter recurring appointments for anniversaries and family birthdays, and more.

### ON THE H/PC

In the Calendar Day view, go to the desired date and time and start typing in the description of the recurring appointment. The new appointment screen opens automatically as you type in the description of the appointment (i.e., "Wedding anniversary").

Make sure the start and end dates and times are correct and check the "Remind Me" box if you want an alarm to sound. Then tap on the left hand "Recur" tab to display the recurring appointment screen. Tap once on the type of recurring appointment you want to set up.

This screen always displays default dates and times for the starting and ending of the recurring appointment. You can change these. Depending on which type of recurring appointment you select, additional information is displayed.

You can keep information about a special person in the Notes field of your Contact list. For example, the kind of flowers she likes, the toys he's been asking about, favorite music or food, things like that. You can note down promises you made to the person in the past and review them before you call.

If out-of-sight out-of-mind is your tendency, use your reminder system to prompt you to call friends and relatives. Or schedule an hour or more a week for community volunteer work. Your Handheld PC will happily help you invest your attention on caring for your fellows.

## Prepare for emergencies with your Handheld PC

In case of earthquake, fire, flood or worse, keep vital data with you in your Handheld PC -- and make sure you bring your Handheld PC with you as you escape.

You and each of your family members should have an entry in Contacts. The Notes field of each individual's entry should contain medications, blood types, allergies, and other health information. Make Contact entries for police, fire department, and other emergency agencies, along with phone num-

bers, fax numbers, and e-mail addresses.

Fax numbers and e-mail addresses are particularly important as wireless communications becomes more widely available. In a real disaster, electricity and phone lines can go quickly and not get back up for days. If your Handheld PC is equipped with a wireless messaging service, you can stay in contact with worried relatives and even send emergency messages to local police. If your car breaks down in the middle of nowhere, or if you have a medical emergency while camping, you might be able to e-mail or fax a request for help to the appropriate organization. But this would only be possible if you have the necessary information with you on your Handheld PC.

If you travel to a new part of the world, get the emergency numbers in advance, and keep them with you in your Handheld PC. If you or a member of your family has a medical condition, keep the generic and specific names of medicines with you in the Contact list along with the name and phone number of a physician familiar with your case.

Some things seem very important at the time, but are not really emergencies. Dinner time is considered an "emergency" situation by some people. Did you know that some restaurants now have fax numbers and e-mail addresses? You can save time by faxing or e-mailing in your order from a Handheld PC and picking it up hot, and ready to go.

## Put low priority requests in a "Promises" list

"If you hear of anything about that, would you let me know?" It's a common experience to hear a request like this, then to have the very item the person was looking for show up



on your desk a week or two later. The problem is that, by the time the item shows up, you often can't remember who asked you for it in the first place.

#### ON THE H/PC

You can keep a Promises list as a Pocket Word document or in your Tasks list. If you keep it in Tasks, you might want to make it a single task called "Promises" and put the complete list in the Note field.

Set a recurring appointment that prompts you to review the list periodically. You could keep the list in the Notes field of the appointment, but it might be hard to find when it comes time to add a promise to it.

Review the list periodically.

### Knowing details about a contact can make a difference

Knowing details about your contacts can make a difference in your business relations. Many professionals keep detailed records about conversations they have with a client or other contact. They'll keep notes about the conversation or meeting, promises made, commitment dates, pricing quotes, etc.

#### ON THE H/PC

Take advantage of Notes tab in

Calendar and Contact to save details about your contacts. Let's say you have a 10:30 appointment to meet a loan officer about the mortgage on a house you're going to buy. Tap twice on the appointment listed in your Calendar and then tap once on the left hand Notes tab to get the full Notes screen for the appointment. (See below.)

Type in important points, facts you want to check, commitments made by the loan officer or by you, prices, percentages, etc. You can keep approximately 20 screens of information for each Note.

It might make more sense to keep this kind of information in the Notes screen of the individuals name in the Contact application. That way you can have a running record of conversations and commitments. You'll want to date and time stamp each entry so you know when the conversation took place.

Some people even keep records of their contacts' business and personal interests or notes on their family members so that they can culture a better relationship with the contact. You may want to keep this information at the top of the Notes screen so you can quickly review it before a conversation.

### Ease into each season with helpful Tasks lists

Each major weather transition sig-

nals dozens of changes you need to make. You need to check out the lawn mower in the Spring and change your auto's antifreeze in the Winter. A seasonal Tasks list can help you stay prepared.

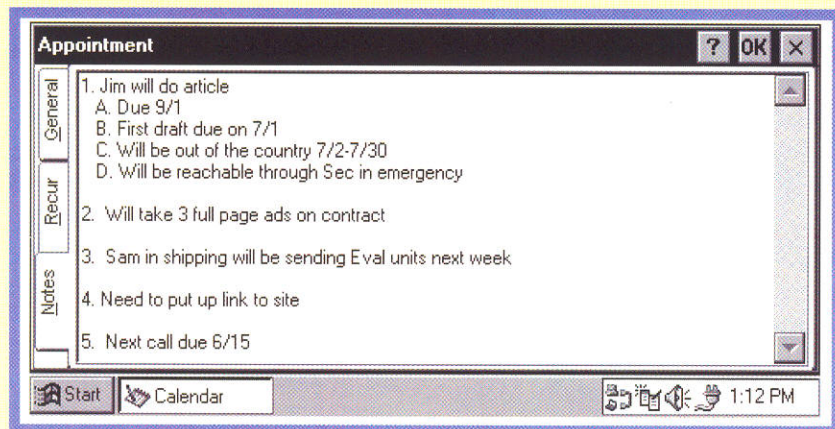
Use Pocket Word to brainstorm and prepare your seasonal lists. When you're finished creating your lists, you can keep them as a Word document or enter them into the Windows CE Tasks application. To avoid cluttering your Tasks list up with hundreds of seasonal tasks, create a single task for each season (call it "Spring tasks" or something like that). Keep the list of all the individual tasks for that season in the Notes field of that task (or in your Contacts using Seasons or Spring, etc. as the name). You might include at the top of that Notes field a list of all the items you'll have to purchase to accomplish the seasonal switch.

When you enter the task, make sure you go to the Project section of the Tasks screen and enter "Spring" or "Summer" or whichever season you're associating the task with. Then, when you want to find the Tasks list for, say, Spring you can tap on the project pull-down menu at the top of the Tasks screen and select Spring. Only Spring Tasks will be displayed.

After you've created your seasonal Tasks list, go to Calendar and create a yearly recurring appointment for each season to review and accomplish those tasks. Better set it for the weekend so you'll have time to do it.

Why reinvent the wheel each season when you can keep a tasks list with you from year to year. Sure, it will change a little each year, but you'll have the basic list there, ready to modify and improve upon.

Keeping separate lists of things you have to accomplish is a powerful productivity tool, and the Handheld PC is the perfect place to keep them.



An appointment's Notes screen lets you keep a detailed record about conversations you have with a client or other contact.



# Physician's Prescription for Tracking Vital Information

*This medical doctor tracks patients, keeps up on medical literature, stays in touch with colleagues and friends, and writes — All on the Handheld PC.*

By Don Vine

I visited my local Office Depot three times before buying a Windows CE Handheld PC. I had read the announcements and promises and was eager to see the real thing. Over the years I had used Sharp's Wizard, HP's LX series of palmtops, Psion organizers, and Apple's Newton. I was going to move to the Psion 3a, but put off buying one until after the Windows CE devices were released.

My first impression with the Windows CE demonstration unit at Office Depot was that it was cute, but the small typefaces were hard to read. I left the store empty handed, wanting to see what the Newton Message Pad 2000 would offer before making a decision. But to make that decision I had to think carefully about what my portable computing needs really were.

I'm a doctor, a cardiologist. I began using computers so long ago I remember the Apple 2e, and DOS as a three-letter Spanish word for

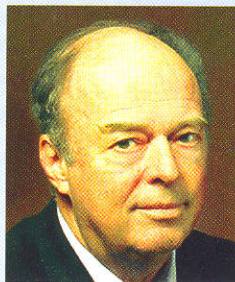
the number two. I started using computers so that I could download abstracts of medical articles from the National Library of Medicine. When I purchased my first Sharp, it was to keep track of names and phone numbers. I switched to a Hewlett-Packard palmtop to use its spreadsheet capabilities to track mileage for tax purposes. I ended up with the Psion because the organizational software was better suited to my needs, the screen could be read like a paperback book, the database was faster, and multiprocessing permitted rapid switching between tasks.

My second trip to Office Depot occurred after I talked to a colleague who had purchased a Cassiopeia. I still had misgivings, primarily because there was no database program on the H/PC. But then LandWare announced the imminent availability of AllPen's Mobile Forms, and I took the \$600 plunge and bought a Cassiopeia.

## Pocket Excel: an important application

As is true with any mobile computing professional, I use a handheld for a mixture of personal and professional data management activities. I have three core "applications," all of them Pocket Excel spreadsheets combining list maintenance with a calculation. The mileage spreadsheet helps me track auto related expenses (see Screen 1, page 46). It has columns for date, odometer reading and trips. A fourth column calculates the difference between the current and previous day's odometer readings to reduce the likelihood of forgetting one of the previous day's errands.

The elapsed time spreadsheet helps me keep track of time spent with a client for billing purposes. It has columns for date, service provided, the outfit to bill and stop time. When an activity is started, the date and time is typed into the first column, which is formatted to display the date. When the activity concludes, the date and time is entered into the stop column, which is formatted to display time. Elapsed time is calculated and displayed in a fifth column. The



## ABOUT THE AUTHOR

Dr. Donald Vine is Associate Professor of Medicine at the University of Kansas School of Medicine - Wichita, where he teaches students and residents and sees patients with heart disease. He began computing with an HP desktop with 32 KB of RAM that stored data on cassette tape. Initially, his computer interests centered on the study of echocardiograms (pictures of the heart created with ultrasound) and the management of medical abstracts. He is currently a Sysop for the Windows CE section of Compuserve's Handheld forum and is interested in the educational potential of portable computing devices.



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	A	B	C	D	E
78	03/23/97	51,961	34	w,f,w,f,w,h,f(call),w,v,w	
79	03/24/97	51,995	12	w,m,w,f,w	
80	03/25/97	5	12	w,m,w,f,w,v,w,h,f(call),w	
81	03/26/97	5	12	w,m,w,f,w,h(e-mInPocket),w,f,w,B	
82	03/27/97	5	12	w,m,w,f,w,h,store(2)	

Screen 1: Pocket Excel mileage spreadsheet helps track auto-related expenses.

expenses spreadsheet helps me track deductible expenses. It has columns for date, recipient, payment method, purpose and deductibility information.

Each of these spreadsheets requires a date and/or time field, which Pocket Excel will accept as entered if the column is pre-formatted. If you enter a valid date and time, such as "1/12 3:15pm", the entry year is assumed, saving a few keystrokes.

When I first loaded Pocket Excel, I was astounded how slowly it ran. Then I discovered that the worksheet metaphor was included and made each of my spreadsheets part of a single workbook-- much faster.

I was also disappointed to discover that three functions I relied upon with the Window's version were not included in the pocket version: title freezing, sorting and cell protection. My workaround was to keep the number of columns small. If a visible cell contains "Amex," for instance, then I know that is the column where the name of the credit card used to pay the bill is to be entered, even if I can't see the column header.

## Database a "must" to track patients

I track patient information using a fairly simple scheme that consists

primarily of an ID number and a Note field. The trick is to keep it simple. In an emergency, most patients will remember their birth date rather than an abstract hospital number or even their social security number. Each patient is identified by a unique ID consisting of his or her name and date of birth. While it's possible that two or more John Smiths may have the same birth date, there is little if any duplication for a personalized reminder system such as I need.

I use a Note field to keep a brief summary of a patient's visit. Each entry starts with a date, contains some information and ends with one or two carriage returns as separators.

Needless to say, I was excited when Mobile Forms arrived by e-mail. I exported a sample into a comma delimited ASCII file, created a recipient database using Mobile Forms, and no luck! It turns out that AllPen's database can't import text fields with imbedded carriage returns. That single limitation-- a limitation that is also shared by the current Psion and HP LX databases-- prevented my using Mobile Forms for the type of patient information management that I wished for, or for any but the simplest textual information.

Intimidated but undefeated, I continued to pursue a workable compromise solution for my two major textual database needs: patient notes and medical abstract reviews.

## Patient information in Contacts

The main reason I need patient information in my pocket is to be reminded of the main issues of past encounters. After a little jogging, my memory then takes over and fills in many of the blanks.

Since Mobile Forms has the limitation outlined above, I am using the built-in Windows CE Contacts database for patient data. I've been reluctant to do this with previous palmtops because the processors were so slow the addition of a large number of patient names to phone-book applications brought the search for non-medical entries to a crawl. The H/PC is faster than previous pocket computers and a product called Pocket On-Schedule ([www.odysseyinc.com](http://www.odysseyinc.com)) gives lookups additional speed.

I obtain patient names, birth dates, addresses, phone numbers and limited insurance information from the office billing database. These are manipulated using Excel (PC version) to create an ID field containing the name and date of birth. The information is then put into Microsoft Access, which I use to identify and eliminate duplicate records.

Now, when I see a patient, I add a dated comment to the Contact's note field. Each time I connect the H/PC to the PC, the Contact database, including my patient information, is automatically synchronized with Microsoft's Schedule+, which is in turn exported to Microsoft Access and makes it back into the office system. Occasionally I forget to enter a few patients, but their names are picked up by the office's billing software.

This system is adequate, but can be easily upgraded when better databases become available. Microsoft updated H/PC Explorer to support Outlook. With this, I'll move the information from the H/PC to Outlook and from Outlook to and from my main database.



## Medical abstract management

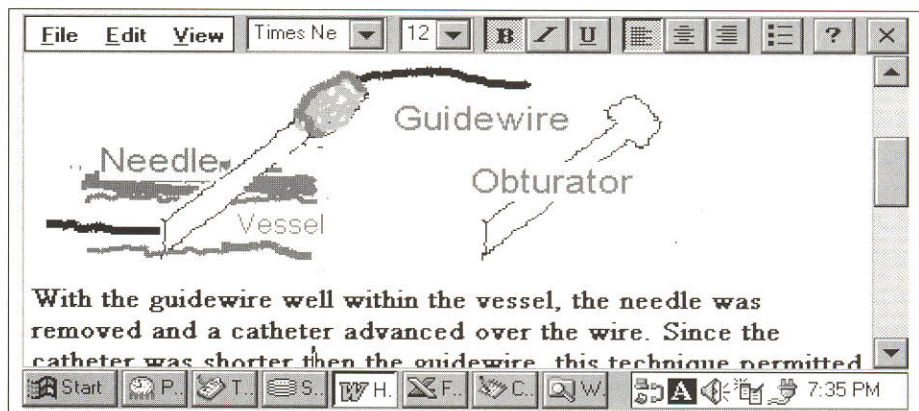
Abstracts of medical articles can be downloaded from a number of online and Internet-based services. I obtain several hundred each month using Knowledge Index via CompuServe and process them with a MS Word macro that converts the text into delimited fields, containing the title, authors, citation, abstract and summary. These can then be imported into a database such as Microsoft Access or, in my case, the information management application, Microsoft Access.

The Handheld PC and Mobile Forms permit me to carry subsets of the database that I can read while on the go. After reading, each abstract is flagged as "read," "key reference" or "zap." After all of the abstracts have been read, the edits are exported from the H/PC back to the PC and incorporated into the Commence database for future reference. In this way I can do my reading while away from the PC, and transfer a record of the importance of each article to the main database. I can also carry subsets of articles I want to review for conferences or other purposes and return them, along with comments and edits to the PC database.

## Writing in my spare moments

I'm a writer. Where many physicians might dictate a memo or letter, I prefer to write it. Pocket Word is simple, but effective and easy to use. If I am preparing a proposal, for instance, I can either wait until I'm home after seeing patients all day, or take advantage of dozens of pauses that occur while waiting between scheduled activities.

More than previous palmtop word processors, I actually enjoy short periods of writing with Pocket Word. Cassiopeia's keys are a little "soft," and doubled keystrokes are fairly common. Nevertheless, I can adjust the font to whatever is visual-



Screen 2: Pocket Word document with imbedded graphic can be saved as document or converted to HTML format on download on the World Wide Web.

ly comfortable and work in outline mode to collapse the sections I'm not working on. In addition, despite the display differences, what I see on the H/PC's screen is pretty much what I see when the document is displayed in Word document on my PC. Writing on a small keyboard is workable, but the real pleasure comes with having a writing project nearly complete before the weekend starts.

I am creating a WWW site that contains material for medical students and residents. When I find a good article, I create an outline summary of its main points using the outliner view built into Pocket Word. I create simple illustrations using Pocket Paint (a component of Power Toys, available at [www.microsoft.com/windowsce](http://www.microsoft.com/windowsce)) and create tabular information in Pocket Excel. I can cut and paste either type of information into the Pocket Word document.

When finished, the document is translated into Word 97 format using H/PC Explorer for spell checking and conversion of tabular data into tables or charts.

Depending on the size and complexity of the document, I use Word 97 or Word2Web (found at [www.solutionsoft.com](http://www.solutionsoft.com)) to convert it into WWW-compatible pages for my Web site. Since the heading levels of Pocket Word are directly compatible with these products, installation can be automated using templates. If I want to preview the

resulting HTML documents, I can do so using Pocket Internet Explorer.

## Staying in touch, on the go

If you are sitting in front of a Pentium desktop PC with a 14-inch color monitor, you'd have to be insane to use the Cassiopeia for Internet browsing. On the other hand, if the Pentium is at home and you are not, Pocket Internet Explorer begins to make a lot of sense.

For instance, if you subscribe to CompuServe, you can log onto the Internet from almost any city in the world. For many, that fact justifies the purchase of an H/PC. My nurse has a CompuServe account, and my secretary an Internet-accessible e-mail address on the medical school LAN. This means that I can submit requests whenever and from wherever it is convenient for me. They can respond when it best suits their schedule.

When in their hometowns, however, Doctors' communication needs are so well supported that many see no need to carry a computer. Need to prepare a report? Pick up a phone and dictate. Need a drug dose? Pick up a phone and call your hospital pharmacist. Often faster than you can whip out your H/PC, and certainly faster than you could connect to a phone line, you can have an answer at no cost to you.



This will change as doctors become more oriented to using clinical guidelines and pathways. As new approaches to patient care become more complex and doctors' compensation more closely related to published guidelines, the need for electronic access will increase.

## Save important information, never search for it again

One of the cardinal truths about using computers is that something you do only once is often not worth the time required to use a computer. So going online to look up a drug monograph may not seem worthwhile. That is, until you realize that you can save a little additional time whenever you have to refer to the information. Most doctors probably use fewer than 50 medications most of the time. So the extra time and effort spent looking up information about a specific drug can gradually be recovered if you save the information as an HTML document each time you look one up. After realizing this, I began saving drug information as I looked it up.

Systematically saving reference material you have to look up once should be useful for non-physicians too. Examples that spring to mind include an HTML language reference for WWW site managers, corporate documents for executives, product specifications for salespeople and items from competitors' Web sites for marketing people.

Support for long file names simplifies management of this kind of information. I'm working toward a content, rather than file-type oriented directory organization, where the subdirectory and file names become the outline that locates the information I need. The listing "PC Card/Myocardial Infarction/Thrombolysis" would contain, for instance, all of my material pertaining to the use of clot busters for the treatment of heart attacks.

Pocket Word, itself, can be used to further organize this material. Outline the directory tree using Pocket Word. Each time you add a file, put its name in the outline. After collecting so much information that you are forgetting where things are, add some descriptive embellishment, load the outline into Windows Word 97, change the file names to HTML format, save the outline as an HTML document and load it back to your H/PC.

Since the outline, now in HTML format, contains the file names as hyperlinked local URLs, you can use Pocket Internet Explorer to find any of your HTML documents from the "index" HTML file you have just created. Future additions can be accomplished by editing the Outline as a text document -- a fairly painless way of learning to use and modify HTML. When the amount of information I have accumulated pushes the storage limits of my PC card, instead of buying a larger card, I plan to move the information to a personal WWW site. From then on, I can access the information from either my HPC or notebook.

There is even a freeware program to ease the task of moving files between your H/PC and the Internet. Scotty is an FTP (file transfer protocol) utility that permits you to transfer files between your H/PC and any Web site supporting the protocol ([www.ruksun.com](http://www.ruksun.com)).

## Reading on the Handheld PC

Like many of you, I do a lot of reading, and when the day is over, I feel there is still more to be done. For purposes of using an H/PC, this might be divided into business and personal reading.

**Business communications** — Although I've advanced little beyond simple e-mail, current technology is adequate to eliminate much of the paper exchange in my office. During the coming year, I

plan to get as much of this document exchange as possible converted to electronic format. As is, 90% of the material my secretary needs me to read for signature is already in digital format.

The inability to send and receive e-mail attachments on the H/PC is a serious limitation. Hopefully this will be corrected in the first update of the Windows CE operating system. Until then, a software product by LandWare, called EncloseIt, that uses the Mime protocol to "attach" files to e-mail, is available. Although I haven't personally tried the program, there is every reason to believe it offers a reasonable workaround.

Much of the information doctors need to review in an attempt to remain current is supplied on CD-ROM discs. This can usually be converted to ASCII text without too much difficulty. Images can sometimes be saved as files. Otherwise they can be displayed, then copied from the screen.

Either way, it is possible without too much effort to copy this text and accompanying images into a Windows Word document. A little additional time may be required to remove extraneous carriage returns and tag the document headings with the appropriate Word heading styles.

Once this is done, there are two conversion options: Pocket Word or HTML.

If the document is relatively small, say less than 100 Kb, and has few or no graphics, then I try to use Pocket Word. The outline view helps to navigate and keep track of where I left off, and changes are implemented with reasonable speed.

If the document doesn't require editing, is fairly large and contains a significant number of images, I prefer the HTML format.

Two programs, CONVERT.EXE and Microsoft Word 97 smooth the exchange of information between the PC and the H/PC. CONVERT is





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a free utility available from [www.microsoft.com/windowsce](http://www.microsoft.com/windowsce). It allows you, or your secretary, to translate documents between Pocket Word and standard formats. Word 97 automates the conversion of documents to HTML format.

Two additional programs, HTML-Transit found on [www.infoaccess.com](http://www.infoaccess.com) and Word2Web from [www.solutionsoft.com](http://www.solutionsoft.com) should be considered if you have lengthy documents that you would like to automatically convert into hyper-linked HTML pages for H/PC (or standard browser) viewing.

**Reading for fun** — There is a world of informative and entertaining material on the Internet just waiting for you to free up some time. The Atlantic Monthly, Time Magazine, Scientific American and Microsoft's Slate exemplify Web sites rich in contemporary topics.

Before I leave town for medical meetings, I like to visit these sites and download material I normally have too little time to read. Afterwards, I don't need a paper-back, just Pocket Internet Explorer and my H/PC.

My daydream is for someone to write a pocket offline Internet browser. Then, each night after I retire, the battery charges in my

H/PC, the software wakes the H/PC at 5:00 AM to log onto my favorite sites, the H/PC wakes me at 6:00 AM, and I read the downloads over coffee and throughout the day. Until that particular piece of vaporware arrives, I am looking for a suitable PC offline browser to download the same information to a PC flash memory card that I can simply insert into my H/PC before breakfast each morning. Less elegant, but just about as effective.

### Handheld computing changed forever

Whether you like it or not, Bill Gates and his colleagues have changed the complexion of handheld computing forever. It won't be long before buying a high-end pocket computer is more like purchasing a standard laptop. It makes little difference whether you buy an IBM, Compaq or Toshiba because they all run the same software and accomplish the same tasks.

With pocket computers, we can now expect seamless connectivity with our desktop PIM and Microsoft Office products, e-mail and Internet browsing, and eventually wireless access to our LAN and

the Internet. Some H/PCs will be faster, have larger screens and keyboards, and perhaps even brand names such as Psion and Sharp. But all will at least appear to run the same basic software, connect to our primary computer and permit us to leave the PC behind for hours and even days at a time.

And that seems to me to be what pocket computing is all about. It's not so much having a palm-sized desktop as being able to get the same work done, on-the-go, as you previously did at your desk.

Does my H/PC permit me to leave my laptop behind for days at a time? Not yet! But with the functionality I've observed so far, the time is not far off. I have little doubt that the weekend is coming when every computing task I need to perform will be done on an H/PC, leaving my desktop PC the job of tidying up the loose ends, formatting the information and managing the databases.

When wireless exchange of data becomes as dependable and affordable as wireless exchange of voice, the Internet will become a hard drive you can access from wherever you are, whenever you want — using your H/PC or whatever computing device is handy.



# My Handheld PC: Window into My Desktop

*The H/PC replaces a laptop for this data processing manager, who calls up spreadsheets and agendas during meetings, uses PIM software to stay organized, and Pocket Streets to stay oriented.*

By James Kendrick

I have a confession to make. When the subject of writing this profile first came up, I gave it some thought and decided I would be "true to the platform" and write the profile entirely on my Cassiopeia. It didn't take me long to give up on this attempt. I don't write long documents on my Handheld PC normally, so why should this be any different? What I did do, however, was drag and drop this document onto the H/PC with no fuss and take it with me for review and modification whenever free time cropped up. And this is the beauty of the connectivity between Windows95 and NT on a desktop and Windows CE -- it's so darn easy.

I am using a Casio Cassiopeia A-11 with 4 Mb of memory (2 Mb definitely is not enough for serious use), a Motorola Montana 33.6 PC Card modem, and a LandWare 8 Mb Flash Card. The Casio uses the SH-3 RISC processor and is quite fast for most things. The backlighting could be better but I don't really have problems with the screen legibility. I think the problems are with the small screen fonts -- not the hardware. If you use a PDA (Personal

Digital Assistant) or H/PC, you must get used to the small fonts or make them bigger.

I run a small but rapidly growing Seismic Data Processing Center that provides contract Seismic Data Processing services for major oil companies. I am responsible for all facets of our office in Houston including financial, personnel, technical, and managerial matters. The projects we get are complex ones that can last weeks or months and are often broken up into 20 or 30 sub-projects. The bids required to win such projects are often nine or ten pages long and quite technical, with many variables which affect pricing and turnaround time. I must track a lot of information, both contact related and project related, and for me the H/PC fits the bill nicely.

## A day in the life

I start the day by checking the appointments and I use the "agenda" view under "Calendar" for planning my day before heading for the office. Once in the office, I use the H/PC constantly for adding and checking tasks, making notes for later referral while conversing with clients on the phone, and generally noting anything of interest. Off and on during the day I also use Outlook97 on my PC. I use whichever fits the task better at the time -- the H/PC or the desktop. The ability of the H/PC to instantly synchronize with Outlook97 on my PC is the real advantage for me. Exchanging information back and forth requires very little effort. I can concentrate on the task at hand, not the platform.



## ABOUT THE AUTHOR

James Kendrick is the Data Processing Manager for the Houston office of Kelman Seismic Processing, a company based in Calgary, Alberta, Canada. He has been actively participating in the computing industry for over twenty years, is IBM-certified as a speech recognition specialist, and is a volunteer technical advisor on the IBM Aptiva forum on CompuServe. He can be reached by email at [kendri3@ibm.net](mailto:kendri3@ibm.net).



## Staying on top of meetings

I attend a lot of meetings, both with employees and clients, and I have a system I use that has evolved with experimentation. I use the outline view in Pocket Word to make an agenda outline before a meeting. I record topics I wish to discuss with the employees or clients. I can easily refer to this while the meeting progresses and add points with very little typing. The outline view lets me group things by sub-topic and add information I collect during the meeting. I always bump up the font size for easy viewing during the meeting.

Using Pocket Excel, I can call up spreadsheets during client meetings to provide on-the-spot calculations of prices in the event they suggest changes in the variables that go into the pricing matrix. This allows me to instantly give them a new verbal figure, which impresses the heck out of them. I also carry on the H/PC a copy of the actual bid, created in Word, for the particular project that is the subject of the meeting. Instant reference pricing and turnaround time promises assures there are no questions after the meeting.

## Spreadsheets track projects, billings, bonuses and more

I keep several Pocket Excel spreadsheets in my Handheld PC at all times. These include: Work in House (every project broken down into sub-projects including size and worth to the company), Invoice Register (every invoice we've cut for the last year), Outstanding Bid Register (to make sure I don't overlook following up on bids for which I've gotten no response), Monthly Billing Breakdown (exactly what it says- going back to Jan. 1996), Salary & Bonus Worksheet (for referral and on the spot calculation of employee bonuses), and of course my Budget Worksheet. Just having

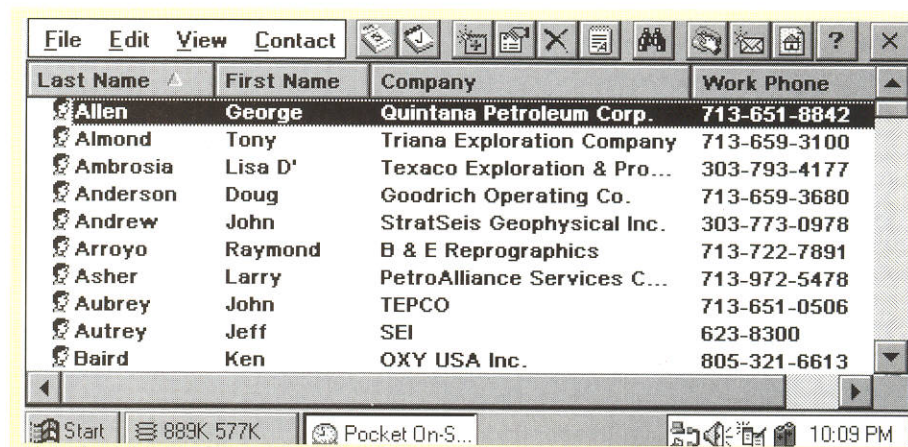


Figure 1: Pocket On-Schedule lets me change the font size in the contacts window.

this information with me all the time is an incredible boon to my efficiency as a manager and planner. I can play what ifs, what isn'ts, and what fors anywhere I have some free time. I can quote information to the appropriate people when they need it, and generally impress clients with the intimate details of their projects.

The important thing to stress about the spreadsheets I carry with me is that I normally just use them for reference. If I really need to modify one I can do so easily, but the significant thing is the ability to carry it with me in my pocket. I can carry more information around now

than ever before. Two-way synchronizing makes sure any change I make on either side of the serial cable is always reflected.

## Pocket On-Schedule manages contacts

I have all my contacts in the H/PC along with their e-mail addresses, so tracking people-related information is very easy. I replaced the Contact application in Windows CE with Pocket On-Schedule, which allows me to change the font size in the contacts window (see Figure 1).

This program also allows multi-

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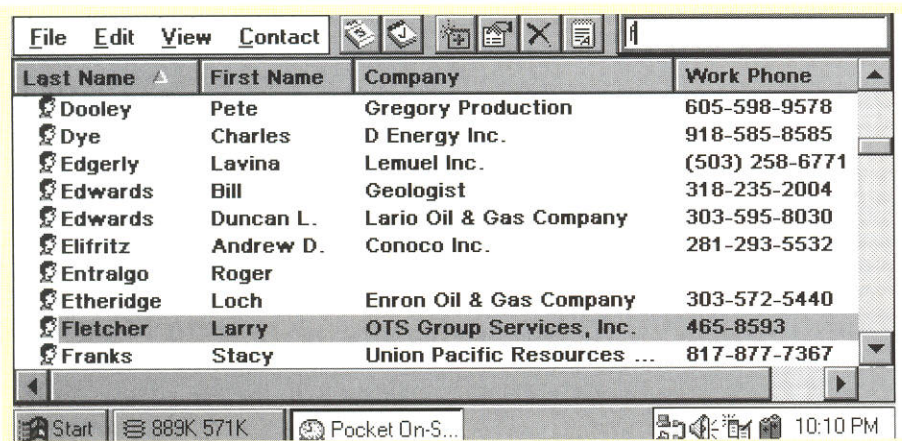


Figure 2: Type a letter in the main contact list of Pocket On-Schedule and it automatically transports you to the first contact beginning with that letter.

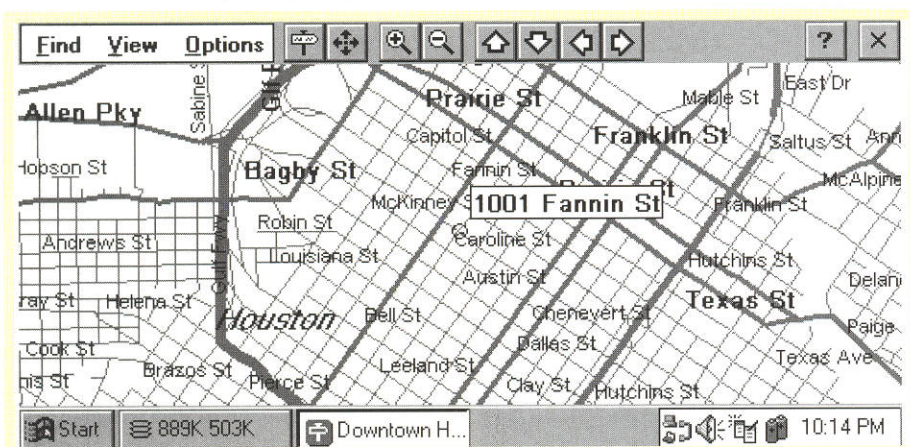


Figure 3: Once on the H/PC I can search for an address, a restaurant, or other point of interest and Pocket Streets will zoom in with my address pointed out on the screen

ple phone books, but I prefer one book with everything in it. I had problems using multiple phone books in the past with contacts that are constantly migrating from one book to another, so I just use the search function to find someone in the big book. Pocket On-Schedule also saves valuable screen real estate by replacing the alphabet tabs with simple functions. Just type a letter in the main contact list and it automatically transports you to the first contact beginning with that letter (Figure 2).

You can also sort by company, last name, or any other visible column in the contact list. Pocket On-Schedule uses the same database file format as the native CE Contacts application, so it automatically synchronizes with Outlook97 on the desktop without doing anything out of the ordinary—a very nice touch.

## Feet don't fail me now

Business trips are where the Handheld PC really comes into its own. I don't even take my laptop with me anymore. The H/PC completely replaces it for me. I make an itinerary spreadsheet before I leave and copy it to the H/PC so I can reference my travel times on the go. I've obviously got all my contact and schedule info with me which is nice, but where the H/PC shines on trips can be summed up in one word: CONNECTIVITY. I use Pocket IE to check up on the company Web site and for general surfing around in the hotel on evenings when my schedule permits. I can handle all my e-mail needs, sending and receiving. I can fax text to those not on e-mail using bFAX Lite from bsquare, which was included on a

CD-ROM with the Casio. Since it allows me to send faxes but not receive them, I usually just have faxes come to the hotel so this isn't a big drawback. I'll be glad when Exchange is compatible with Microsoft Fax so I can send document files without UUencoding them.

I can check stock quotes using Quote Ticker Bar utility by Starfire Software, or with Pocket Internet Explorer. I keep up with news-groups of interest (including Handheld PC-related groups) using mobileNews by CEscape (<http://www.ararat.com/wince>). I use Telnet and ScottyFTP to log into my local Unix network while on the road to keep up with the employees' progress on the various projects we have going all the time. I carried my laptop around for years in order to accomplish these tasks, but now I can put it all in my pocket! I use a Motorola Montana 33.6 modem, which has worked flawlessly for my communications. (A word of advice: don't ever try to use a PC Card modem on battery power alone. Connect your Handheld PC to its AC adapter. Running a PC Card modem off the H/PC's batteries can eat a new set of AA batteries in 5 to 15 minutes.) The only communication-related program I miss is a CompuServe Navigator like NavCIS. I really miss the ability to log on to CompuServe and automatically hit the forums I need to keep in touch with (like HPHAND and PALMTOPB). I'll be glad when someone writes one (Dvorak are you listening?). But otherwise, I'm a happy camper with this arrangement.

## The shortest distance between two points is a good map

The killer application for Windows CE is definitely Pocket Streets by Microsoft. This version is compatible with Automap Streets on the desktop, which lets me do one very significant thing: select a rectangle



on any map on the screen (almost anywhere in the US) and export it to the H/PC. Once on the H/PC I can search for an address, a restaurant, or other point of interest and odds are Pocket Streets will zoom in with my address pointed out on the screen (Figure 3). The HPC enabled version of AutoMap comes with the Small Business Edition of MS Office.

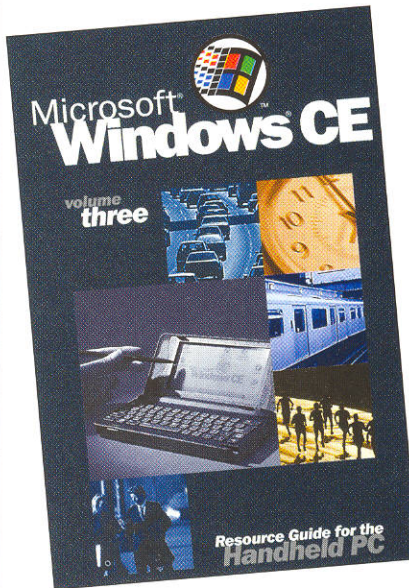
This means I can carry any map I want with me. No more folding maps to put them away. This alone has saved me countless hours finding places. The maps can be large, which slows the program execution down on the Handheld PC. To overcome this problem I have split up Houston into five maps: NW, SW, NE, SE, and a downtown map I use for finding parking garages when I go downtown. When not in use I keep these maps on the Flash Card and can actually run them from the card, albeit slower. If I'm going to do a lot of zooming in or out, I copy the map to main memory where it will run very fast. This is a very nice program and you couldn't take it away from me if you tried.

### Tried and true

As you can see, I'm quite happy with the Handheld PC and Windows CE. I don't even have serious problems with the screen under most lighting conditions. I've gone through other PDAs in the past (Zaurus, HP's LX series, Newton MP120) but I just didn't find myself using them much over time. They didn't work for me like the H/PC, mainly because of the connectivity. I must stay in synchronization and communication with all the information on my desktop and this is the way for me.

A final note: Some have complained about missing applications in the first release of Windows CE. Third party developers will fill in the gaps. In fact, I think we are about to be flooded with apps like no other PDA has spawned, and this means longevity for Window CE.

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1. What brand of Handheld PC do you own? (choose all that apply)

- ☐ Cassiopeia   ☐ Compaq PC Companion   ☐ NEC MobilePro   ☐ Philips Velo  
☐ Hewlett Packard HP 300 LX and 320 LX   ☐ Hitachi Handheld PC   ☐ LGHPC

2. Please indicate which of the following products you have purchased or will purchase within the next 12 months.

	Have Purchased	Will Purchase		Have Purchased	Will Purchase
Accessories/Cases	<input type="checkbox"/>	<input type="checkbox"/>	Database Tools	<input type="checkbox"/>	<input type="checkbox"/>
Development Tools	<input type="checkbox"/>	<input type="checkbox"/>	Forms Design	<input type="checkbox"/>	<input type="checkbox"/>
Notes/Word Processing	<input type="checkbox"/>	<input type="checkbox"/>	Modems/PC Cards	<input type="checkbox"/>	<input type="checkbox"/>
Wireless Communications	<input type="checkbox"/>	<input type="checkbox"/>	PIM	<input type="checkbox"/>	<input type="checkbox"/>
Time/Expense Tracking	<input type="checkbox"/>	<input type="checkbox"/>	Other (specify) _____		

3. Do you purchase or authorize the purchase of Handheld PC products? ☐ Yes ☐ No

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# First Impressions of the Handheld PC

*From initial infatuation through getting it all to work, this Handheld user tells all, including his favorite Windows CE software and services, and where to get them.*

By Craig Peacock

As soon as I saw the Windows CE machines at COMDEX Fall 1996 and as soon as I saw the sheer volume of people looking them over, I thought, "I've got to get one of these!" I visited all the hardware vendor's stands and asked the same question, "I'm from the U.K., when will I be able to buy a Windows CE Handheld PC in England?" The standard answer was around June/July 1997. I found six stores in the Las Vegas area that were selling them. When I phoned each I got the same answer, "You had better be quick, these are selling like hot-cakes!" Off I went to purchase Casio's Handheld PC.

I normally use HP's OmniGo 700LX (a combination 200LX palm-top PC and cellular phone). I also take a 14.4 PC Card modem with me on trips to access e-mail, send faxes, and access CompuServe. I also have SRAM and Flash memory cards and a lot of data on the 700LX. I was left wondering whether I would be able to transfer my information to the Windows CE machine and would I be able to use my various PC Cards in my new Handheld PC.

## Getting it all to work

I took the 14.4 PCMCIA modem, a Dynalink modem which uses the Rockwell chipset, plugged it in, double tapped on Remote Networking, Make new connection, and selected Dial-up connection. I was pleasantly surprised! My modem name appeared in the Select a modem field! I entered the phone number and my modem was setup. I double tapped on the connection I had made and it dialed up and was working—no problems. Next I inserted my 2 Mb SRAM card. It worked fine, without losing any of the data on it. I ran Microsoft Pocket Word and opened up the text files that I had saved in the Memo application on my HP 700LX without a hitch. I was still in shock! Vendors always say their product is easy to

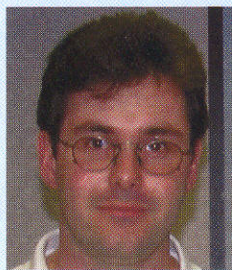
use, but my experience tells me it never is. The Handheld PC was different.

I got back to the office and had to keep my Handheld PC under lock and key. My boss wanted one. Everyone who saw it wanted one. My next job was to look through all the software that came on the CD-ROM packed with the Casio H/PC. I installed the Microsoft CD-ROM. It, in turn, installed Microsoft Schedule 7 and H/PC Explorer on my desktop PC. Inbox converters on the PC and Pocket Internet Explorer onto the Handheld PC.

Next on my list of things to do was to convert my Phone Books (name and address information) from the HP OmniGo 700LX to the Handheld PC. First I found a copy of GDBIO.EXE. This utility program converts the 700LX's file formats to CSV (comma separated values) format. I copied my 700LX files to my PC and ran GDBIO (i.e., the command `phone.pdb > phone.csv /x` converts the 700LX's Phone Book file to CSV format). I then opened up Microsoft Schedule 7 on the PC, did an import of PHONE.CSV file, and presto, all my names and phone numbers were on my PC. The next step was to plug in my Handheld PC and follow the step-by-step instructions that were on the screen. It made a backup copy of my unit then synchronized all my data, appointments and contacts. I couldn't believe how easy it was!

## Lots of useful Windows CE software

That was back in November and since then I've started using my Handheld PC on a daily basis. It's been an interesting few months;



### ABOUT THE AUTHOR

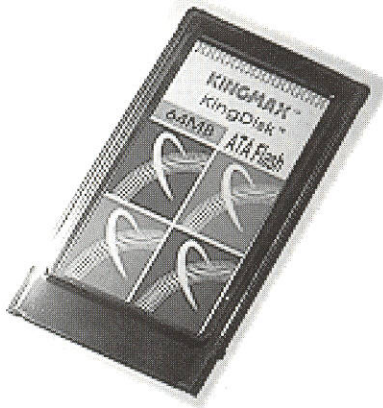
Craig Peacock is a senior manager at Northamber Plc, The UK's Largest trade only computer distributor, where he spends most of his time doing various technical tasks ranging from administering NT & Unix systems to researching and evaluating new products. In his spare time he authors his Website (<http://homepages.enterprise.net/craig/windowsce.html>), and has been a Windows CE user since November 1996 when he first saw the units at COMDEX Fall. Craig has been using Palmtops and PDA's for over 5 years now and when he's not working with computers he's spending time with his fiancé Lily.



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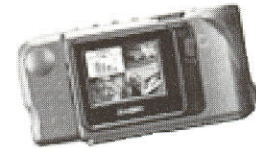
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new software is released for these units almost weekly. The number of software companies producing software for Windows CE is massive. Over 1000 plus companies are on the Microsoft Developer program for Windows CE and these people are releasing software of excellent quality. All the programs are written using Microsoft Visual C++. There are a few products that just stand out:

**Fax Software** — Several Handheld PC vendors are including bFAX Lite software, a send-only fax program, with their units. HP is bundling bFAX Professional (\$79), which has send and receive capability. Contact: bsquare Development at: <http://www.bsquare.com/development>

**Internet News Servers access** — Try Mobile News from ADAGEUS. Contact: <http://www.adageus.com/>  
**Telneting into a host from a Windows CE Handheld PC** — Get

Telnet CE from Ruksun Software Technologies. Contact: <http://www.corus.com/wince>

**FTP with Windows CE Handheld PCs** — Scotty, from Ruksun Software Technologies is a graphical FTP Client. Contact: <http://www.corus.com/wince>. MY FTP (MAENO Yasushi FTP) is a character-based FTP client software. Contact: <http://www.kt.rim.or.jp/~ym1-cc/myftp-e.html>

**Handwriting Recognition** — You are almost spoiled for choices here. There are at least three vendors producing handwriting recognition in various forms, including:

JOT from Communication Intelligence Corporation Inc. Contact: <http://www.cic.com>

SmARTwriter from Advanced Recognition Technologies. Contact: <http://www.artcomp.com/>

Paragraph Calligrapher for Windows CE. Contact: <http://www.paragraph.com> or

<http://netcalif.paragraph.com>

**Microsoft software** — It just shows the wonderful time we are in. Windows CE software vendors bring out new software all the time. Microsoft has released the Games Pack for Windows CE, Microsoft Pocket Internet Explorer comes with the units, Microsoft Pocket Automap Streets is available for most major cities in the USA. <http://www.microsoft.com/windowsce>. I recall when these units were announced back in November some skeptical people said, "There's no third party software available, it will never be a success." I think that these people may be in hiding now.

I think it's going to continue being a very interesting year. If the current rate of software appearing for Windows CE continues, then we should have well over 500 applications available by the end of 1997. I definitely think Windows CE is here to stay.



# Using Microsoft Pocket Internet Explorer

By Tom Gibson

At the present time, there is only one Internet browser available for the Windows CE Operating System and that is Microsoft's Pocket Internet Explorer. All of the Handheld PCs come with MPIE either built into ROM or on the CD that came with your Handheld PC. The latest version is 1.1 and it is available from Microsoft's Handheld PC download page at [www.microsoft.com/windowsce/hpc/software/default.htm](http://www.microsoft.com/windowsce/hpc/software/default.htm) along with all of the other offerings from Microsoft. If you have installed MPIE from a CD installation, you may still want to visit Microsoft to get the latest patch for version 1.1 that adds some features like Security, Caching and Cookies technology. In this article, I will assume that you have read Craig Peacock's article on how to configure your H/PC to connect to the Internet, and will cover more of the Microsoft Pocket Internet Explorer features and explain some of the vocabulary used.

Microsoft Pocket Internet Explorer is an application that will let you view and maneuver through the World Wide Web (WWW) or Internet. It is a fairly full reproduction of its big brother, Microsoft Internet Explorer. The World Wide Web is really about 30 million computers that are all interconnected by various methods with trunk phone lines as the backbone. The Internet

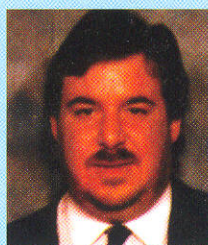
is still dominated by UNIX based machines, although Microsoft's Windows NT servers are becoming a bigger part of it. The pages or sites are for the most part done in Hyper Text Markup Language (HTML) which is an old technology, but allows pages to be shown with a mixture of graphics and text depending upon the browser that you have. MPIE is a browser and is able to display graphics that are embedded in the WWW html pages. The browser reads in the document like a word processor would and formats it so that you can view it in the manner that the author planned. There has been much written about the World Wide Web and Hyper Text Markup Language, so I will not bore you with any more here.

The best way to learn anything is to get in there and muck around. However, the Internet and Web browsers can be intimidating, so I'll try to give you some of the major points of how to maneuver around the web, view different types of pages, download files to your H/PC and configure MPIE.

## Surfing the Web

I have had better luck getting a good connection to the Internet by first starting MPIE and then using the Remote Connection to dial up my ISP (Internet Service Provider), and when connected to my ISP, going back to MPIE. It really shouldn't make any difference in which order these tasks are done, but as I said, I've had better luck my way. Don't be discouraged and have patience if you don't get a good connection every time you try, that is the nature of the beast and the adage "If at first you don't succeed, try, try again" is certainly valid with the Internet.

When you start MPIE, it opens to your "Home Page". This does not mean that you have an Internet site of your own, but rather an HTML page either on the Internet or on your H/PC is opened. MPIE comes out of the box with a home page designated that is from Microsoft and has links to some of their Windows CE pages. You can designate your own home page by tapping File Properties and selecting the General tab on the Properties screen. Here you will see a box at the bottom of the page that says Address (URL); this is where you place your choice of a home page. To make an HTML file on your H/PC be your home page, you use the following format. I'll use the built in page as an example: <file:///windows/default.htm>. This tells the browser that the home page is on your H/PC and that it is the document called default.htm in the Windows directory. If you want to make a page on the Internet be your home page, use this format. I'll be



### ABOUT THE AUTHOR

Tom Gibson is Technical Editor, as well as the Chief Information Officer, at Thaddeus Computing in Fairfield, IA. Tom lives with his wife Julie and his 2 sons, Raymond and Ryan. He has a BS Degree in Accounting from Robert Morris College in Pittsburgh, PA and is an avid golfer, playing to an 8 handicap when his career permits.



using Thaddeus Computing's Web Page for this example: [www.thaddeus.com](http://www.thaddeus.com). This tells MPIE that your home page is on the WWW at a domain named thaddeus.com. As I said earlier, the Internet is still dominated by UNIX based servers, and UNIX is very picky about the way you enter addresses, it is case sensitive and you must have it right. The Internet is especially picky when you get beyond the domain name of an address. Your browser may find WWW.THADDEUS.COM to be the same as [www.thaddeus.com](http://www.thaddeus.com), but it will not find WWW.THADDEUS.COM/HPC.HTM if the file name on the server is not all caps. As a general rule of thumb, the Internet is in all lower case.

## HyperLinks

The easiest way to get around the Internet is to follow HyperLinks. Links are usually designated by Underlined Text. A link will take you to another page on the Internet by tapping on it. The page could be within the same site, or a page on the other side of the world. If you don't like where a link has taken you, tap on the Back button (<) to go back to the last page you were on. Many pages on the Internet have HyperLinks on them to take you to related sites other places on the World Wide Web. For example, Thaddeus Computing's *Handheld PC Magazine* Web page has links to many Handheld PC related sites. There are links to all of the manufacturers of Handheld PC's, links to many of the 3rd party providers, and links to other general H/PC interest sites. Pages like these make good home pages, because they give you a lot of places to go to get information or download files. On the Default Home Page for MPIE, there is a HyperLink to take you to the Microsoft Windows CE Home Page, and another link to take you to a Web Tutorial. Everyone should take this tutorial, you never know what you'll learn, and taking an interac-

tive tutorial like this can only increase your enjoyment of experiencing the Web. Again, this is a place where patience is needed. Many of us are used to clicking on a document on our PCs and having the document open right up. This doesn't happen on the Internet unless the page is still in cache. MPIE has a caching mechanism built into it, and pages and graphics are kept there to help speed up maneuvering around on the Internet.

This will be especially apparent when you hit the Back button (<) and the page that took 60 seconds to load originally, takes only 5 or 10 seconds. MPIE also tells you when it's working. If you look in the upper right hand corner of the screen, you will see Microsoft's patented "flying window", this will tell you that MPIE is working, either looking up an address, attaching to and loading a page, or whatever. The page will not be fully loaded until the Flying Window disappears.

Sometimes you may want to search for a particular subject on the Internet. This is where the search engines come in. There are probably 30 or so major search engines available on the Internet. The different search engines all do their thing a little differently, and you will be well served to find 1 or 2 that you like and use them. A couple of the major ones are as follows:

 **Newton**  
Systems Integrator

 **Microsoft**  
**Windows CE**

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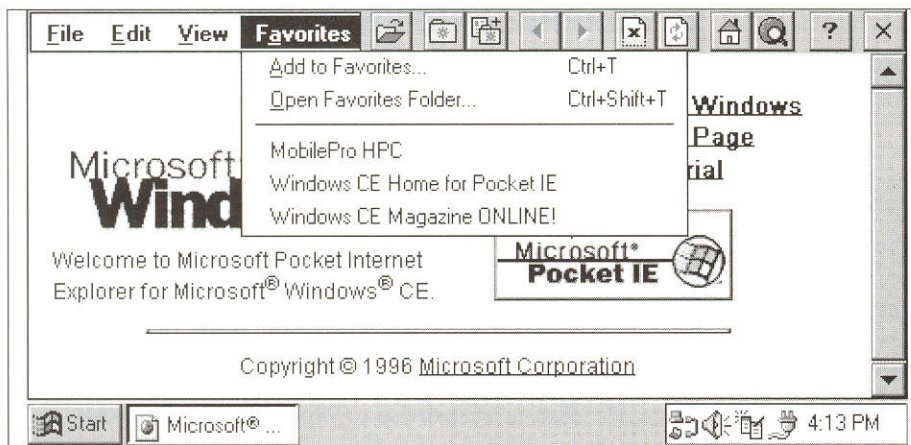
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**Excite** ([www.excite.com](http://www.excite.com))  
**Magellan** ([www.mckinle.com](http://www.mckinle.com)).

There are many other search engines out there. You need to find the one you like and put it in your Favorites folder. The World with a magnifying glass icon will also take you to MSN's search page, where you can do a search from any of the above search engines along with a search of Microsoft.

The Favorites folder (see Screen 1, next page) is a place in MPIE where you can put Internet addresses that you go back to all the time. This will save you a great deal of time. You won't have to remember the URL or address of the site, or how you got there in the first place. When you find a page you like and want to come back to, add it to your Favorites folder by tapping Favorites - Add to Favorites, tap





Screen 1: Microsoft Pocket Internet Explorer showing the Favorites pull down menu. Note that the three bottom titles are actual bookmarks. Tap on one to go to that Internet site.

the Favorites icon or use the (CTRL) T hot key combination. To go back to an address that you have stored in your Favorites or Bookmark folder, tap on Favorites Open Favorites Folder, tap or use the hot key combination of (CTRL) (SHIFT) T and select the location you want to go to. Many of the bookmarks or addresses in the Favorites folder will have the name or key words of the site so you will be able to tell what they are. MPIE prompts you for a description of the link while providing what MPIE thinks it should be called. You can over ride this by simply typing in a description that is meaningful to you.

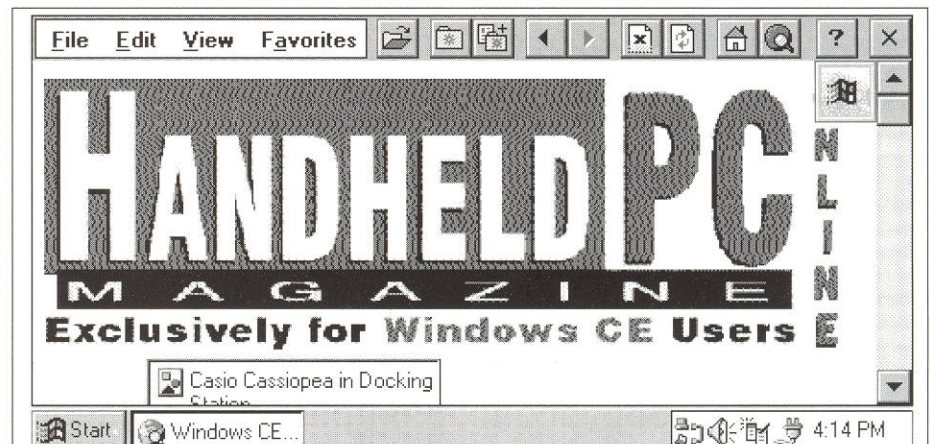
Another major reasons to go "On Line" is to download software from the Internet. There is a vast collection of freeware/shareware/demoware available for download on the World Wide Web. The amount of Windows CE software to download is growing everyday. However, like in other facets of life, you must be careful of what you download. There are many strange, malicious people out there who get kicks from writing computer viruses that can infect your computer, so protect your self. Don't download anything from a location that you don't trust. The manufacturers of the Windows CE machines and all of the 3rd parties developing software for the H/PC are reputable and are safe places to download

files. These companies are very protective of their reputations and virus check all of their software before posting it, so the chance of getting a computer virus from one of them is very small. Thaddeus Computing, Inc also virus checks all of the software we post on our Web site to protect you (see Screen 2 below). I don't want to sound like a preacher, but as Network Administrator at Thaddeus Computing, it is part of my job to ensure that we don't infect our systems, and I am very adamant about it, so I'll warn you too - Practice Safe Downloading.

Many times you will download files to your Desktop PC that will later be moved or copied to your H/PC because of the storage space difference, but you can download them directly to your Handheld PC.

Most of the time, the files you download to your H/PC will be HTML documents, which you can then view later using MPIE or edit in Pocket Word. To save an HTML document, simply tap on File, Save As, and MPIE will prompt you for a location to put the file and also a file name, under the Type it will say HTML Files (\*.htm, \*.html). To download a binary file to your H/PC, tap on the file you want to download. The Microsoft Pocket Internet Explorer warning box will pop up, informing you that it is opening the binary file that you have selected, (such as freeware or a Word document), and telling you that "Some files can contain viruses or otherwise be harmful to your computer". It is important to be certain that this file is from a trustworthy source." I couldn't have said it better myself! MPIE then asks you if you would like to download the file and save it on your H/PC. If you do want to download it, tap on yes, otherwise select no and the download will be aborted. If you choose yes, you are prompted to tell MPIE where you want to put the file on your H/PC and then the downloading will begin.

There is a big world out there on the World Wide Web, and we can all be there from where ever we are and whenever we want, thanks to our HP/Cs and Microsoft Pocket Internet Explorer.



Screen 2: Thaddeus Computing's Handheld PC Magazine WWW site ([www.thaddeus.com](http://www.thaddeus.com)).

Note the "flying window" in the upper right section of the page. This denotes the fact that MPIE is still working on retrieving the page and has not completed loading.



# Two users show how they connect to their information services with the H/PC

## Connecting your H/PC to your Internet Service Provider (ISP)

By Craig Peacock

*craig@enterprise.net*

Web: <http://homepages.enterprise.net/craig/windowsce.html>

One of the big benefits of having a Handheld PC is the communications ability. With Inbox and Microsoft Pocket Internet Explorer available, there is no need to be confined to a chair in front of a desktop computer to get real work or fun done. However, you must be able to connect to the Internet and your Internet Service Provider (ISP). I use Enterprise Plc as my ISP, but the steps I used apply to virtually any ISP, here is how to do it:

1. From the Start menu, tap on Programs, double tap Communications, and double tap Remote Networking.
2. Next double tap on Make New Connection and define it. I used the default name, "My Connection." Then select Dial-up Connection as the type, and tap Next.
3. Select the appropriate modem. If you have a modem inserted in your H/PC it should be shown.
4. Tap the TCP/IP Settings button and assign the following in its dialog box:

- A. Server-assigned IP address: checked.
- B. Log on to network: unchecked.
- C. Use software compression: checked.
- D. Use IP header compression: checked.
- E. Server-assigned name server addresses: unchecked.
- F. Supply the IP addresses. Mine are as follows (These IP addresses are for my ISP, you need to enter the correct IP addresses for your ISP here):

Primary DNS: 194.72.192.1  
Secondary DNS: 194.72.192.3  
Primary WINS: 0.0.0.0  
Secondary WINS: 0.0.0.0  
Then tap OK.

5. Back in the Make New Direct Connection dialog box, double tap on Configure and selected the following in the Device Properties dialog box:

- A. Use Terminal Window after dialing: checked.
- B. Baud Rate: 19200 (for the 14.4 modem).
- C. Data Bits: 8.
- D. Parity: None.
- E. Stop Bits: 1.
- F. Flow Control: Hardware.

6. Tap OK to save, supply the phone number in the appropriate box, and tap Finish. This will give you an Icon in the Remote Network folder. At this point make a desktop shortcut by highlighting the new icon, tapping File, Desktop Shortcut. That puts a shortcut icon on the desktop making it easy to connect up.

Now when you want to login, physically connect the modem and double tap on the icon. After dialing and physically connecting to the server, the terminal screen pops up, prompting you to login. Type in your login name and press Enter. Next you're prompted for the password. Type it in and press Enter. What appears to be gibberish but is PPP negotiation comes up on the screen. Ignore it and tap OK. A little box comes up with the message "User authenticat-

ed." It goes away on its own and the icon for the connection appears on the lower right task bar. (If it doesn't go away, a box will come up offering you the choices of Hide or Disconnect. Select Hide and it goes away to the task bar as described above. If the box says, "Hide and Cancel," you are not connected. Exit and start over again.) You're logged on until you double tap on the Connected Icon, next to the time, in the bottom right of the screen and select Disconnect. I am able to check e-mail on my Internet provider's account using this method with Inbox or surf the WWW using Microsoft Pocket Internet Explorer. Please note that Windows CE will only work with ISPs supporting PPP, there is no SLIP support built into Windows CE.

## Accessing CompuServe with Your H/PC

By Don Hergert

*72235.32@compuserve.com*

Many computer users belong to CompuServe (CIS), and there is some good support for H/PCs available on CIS in the HPHAND and PALMB sections. Most users are familiar with the proprietary interface that runs on your Desktop PC, but it is not available for the Windows CE Platform. However many areas of CompuServe are accessible as text or ASCII based Bulletin Boards using your H/PC and the built-in Terminal Application. Here's how to do it:



## Create a terminal icon

1. Tap the Start button on the Windows CE taskbar.
2. Tap the Programs group.
3. Double tap the Communications folder.
4. Double tap the Terminal icon.
5. Double tap the Make a New Connection icon.
6. Supply the name for this new Terminal icon. ("My Session" is default)
7. Select your modem from the drop-down list. ("Hayes Compatible on COM1:" default) If you have a PCMCIA modem inserted, it should be displayed in the "Select a Modem" box.
8. Tap the Configure button to go to the Device Properties dialog box.
9. In Connection Preferences, select your modem's highest recommended Baud Rate from the drop down list.
10. Select the Data Bits, Parity, Stop Bits, and Flow Control used by the system you want to connect to. For the Cassiopeia, it is probably best to just leave the settings at 8 Bits, No Parity.
11. Leave unchecked the following: Manual Dial, Use terminal window before dialing, and Use terminal window after dialing.
12. Tap on the Call Options tab. These settings are optional for normal dialing and modems. Change them only if you know you want one of the features involved changed.
13. Tap OK in the Device Properties window.
14. Enter the Telephone Number you want auto-dialed.
15. Tap the Emulation tab. Select the emulation you want for this Terminal icon. (DEC VT-100 or TTY (Generic).
16. The remaining properties on this tab are optional. Change them only if you want one of the features involved changed.
17. Tap the OK in the upper right of the Session Properties window.

## Setting up your modem to work properly with Terminal

1. Attach your modem to your Handheld PC. If you are inserting a PC Card modem, turn off the Handheld PC, insert the modem, press the reset button and turn the system on. Always try to use the AC adapter with PC Card modems to avoid draining the handheld's main batteries.
2. Make sure BEFORE ATTACHING THE PHONE LINE to your modem that you are connecting to an analog phone system. Most phone systems are analog,

but many hotels and businesses use digital phone systems which have higher voltages running through their lines. DIGITAL PHONE SYSTEMS CAN FRY PC CARD MODEMS! If you're not sure, don't attach it. If nothing else is available, a fax phone line will work. When you are sure it is a safe analog line, attach the phone line to your modem.

3. Locate the new Terminal icon you just created above and double tap it.

4. If at this point your system dials, the service you are calling connects, the Terminal window opens, and the service you are calling prompts you for user identification information. If this successfully occurs, you are finished with this section. Move on to the next section: "Getting CIS to Talk with You." If not, go to step 5.

5. If at this point your system dials, the phone is answered, you appear to connect but don't get a Terminal window (instead, your dialing window just stays there after the "noise" of the modem negotiation ends). Terminal is either having trouble with buffering, or with recognizing the connect string your modem is providing. Tap the Cancel button, and then tap the Terminal icon you've created.

6. Tap the Properties tool bar icon (the one next to the big X). This will move you back into the Session Properties window. Tap the Configure button, and then the Call Options tab.

7. In the Extra Settings field, enter \N0. This is a modem command to use normal buffering with no error correction. Tap OK, and then OK again. Then double tap the Terminal icon.

8. Try to connect again. If you get a Terminal window but no prompt from your service, press Enter a few times. At this point, you should get an identification prompt from your service. If so, move on to the next section: "Getting CIS to Talk with You." If not, go to step 9.

9. If again your dial window just waits and waits, go back to the Extra Settings field, and add X0 to your previous modem command using the procedures in step 7. This is a modem command to produce the minimal standard set of return codes. Try to connect again. If you succeed this time, move on to the next section: "Getting CIS to Talk with You." If not, go to step 10.

10. If this still doesn't help, you'll probably need to scrap auto-dial, and enable the manual dial terminal session as a part of Terminal. You'll have to type the dialing string manually, but at least you will know when the dialing has been successful. When you see the connect string, press OK in the manual dial ter-

iminal session, and Terminal will start up with the new connection.

11. To enable manual dial, tap the Terminal icon you've created, then tap the Properties tool bar icon (see step 6), and tap the Configure button. Tap the Manual Dial check box to enable it. Tap OK and then OK again.

12. Consult your modem manual for the actual dial command syntax. For Hayes-compatible modems this will be something like ATD followed by the phone number to dial.

13. Double tap the Terminal icon. You'll get a manual dial terminal window. Enter the appropriate dial string from step 12. You should hear your modem dialing, negotiating with your service's modem, and eventually you should see some sort of connect string confirming your connection. When that occurs, press Enter a few times. You should then see prompts from your service. Tap OK.

## Getting CIS to talk to you

1. The regular Terminal screen should be before you now. Press Enter once. In the U.S., you'll probably see something like the following:

```
00 XXXX
Ho t N e:
```

This may be different in other countries. If you do get this prompt enter the Host Name, "CIS". The reason these prompts are missing characters is that CIS defaults to 7 bit words, Even parity. The Cassiopeia, at least as far as we've seen, can only communicate at 8 bit words, NO parity. The missing characters are actually the typical garbage high-bit characters of a parity mismatch, only they've been masked out by the VT-100 emulation (if that was your emulation choice). If you used TTY emulation, you'll actually see the garbage high-bit characters in place of the spaces.

2. You should get the next prompt: " User D: " Enter your User ID with a "+" appended to it at this point.

3. Now you should get this final login prompt: " Password: " Enter your password now.

4. You should now be in CompuServe. This is the Text mode, and everything runs using a simple menu system. You can enter GO [servicename] to jump around, or just follow the menu tree. Type Help to see more navigation information.

5. When done with CIS, just tap the X in the upper right hand corner. This will disconnect your modem from the phone line and exit your Terminal session.



# W h a t ' s O n l i n e ?

By Tom Gibson  
 Technical Editor at *Handheld PC Magazine* and *The HP Palmtop Paper*  
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<http://www.thaddeus.com>

Welcome to the Premier issue of *Handheld PC Magazine*. In this article I will try to give you a flavor of the support and hot spots for Handheld PCs available to you on the Internet. There are a wide variety of information sites: places to download software and demos for your Handheld PC, H/PC Manufacturers home pages, and support for you Handheld PC. As a bit of warning to you, the Internet is like a living and breathing creature; it changes constantly. Sites come and go, and sometimes they change their address, just like us. A great site today is tomorrow's "ho-hum" site. The only thing that is constant about the Internet and the World Wide Web is that they will not be the same tomorrow. A great starting place is this magazine's home page at <http://www.thaddeus.com>

## Handheld PC Manufacturers

At the current time there are seven manufacturers selling Windows CE-based Handheld PCs, and all of the manufacturers have Web sites for their machines.

**Casio Cassiopeia** — The first Handheld PC out of the gate was the Casio Cassiopeia. Casio's page for their Windows CE Handhelds is at: <http://www.casiohpc.com/home.html>. It is continually being updated. The Cassiopeia home page

has a section for technical support, a "What's New" section, a software section and much more. (Owners of earlier Cassiopeias may have experienced a keyboard problem which caused some of the units to run the batteries dead, losing all data stored on the RAM. The technical support section of Casio's Web side has a patch that will fix that problem.)

**Compaq PC Companion** — Compaq's home page is at: <http://www.compaq.com/us/common/prodinfo/handhelds/index.htm>. This page has lots of information on where to buy a PC Companion and accessories to go with it, and a "Real Uses" section that tells how real people use their PC Companion for business and personal use. Compaq's site also has a fix that you can download for the keyboard problem.

**LG Handheld PC** — The LG Electronics' home page is at: <http://www.lgeus.com/hpc/>. This page has a nice rundown of the specifications and features of the LG Handheld PC, called the LHPC.

**Hitachi Handheld PC** — Hitachi not only markets a Handheld PC, it is the manufacturer of the SH3 RISC chip that is used in the Casio, Compaq, Hewlett-Packard, LG Electronics, and Hitachi Handheld PCs. The home page for the SH3 CPU is at: <http://www.halsp.hitachi.com/news/sh3-ce.htm>. It contains some very good information about the SH3 and Windows CE.

**NEC MobilePro** — NEC's offering in the Windows CE market is the

MobilePro. The MobilePro is one of the two current Windows CE offerings to use NEC's VR4101 processor, a high-speed, low-power 64-bit MIPS RISC processor. To see what NEC has to say about the MobilePro, go to <http://www.nec.com> and select the Products button, then choose Handheld PCs.

**HP 300LX and 320LX Palmtop PCs** — Hewlett-Packard's home page is located at: <http://www.hp.com/handheld/palmtops/newprdt.html>. HP tells us about the 300/320LX's features, including the wider screen

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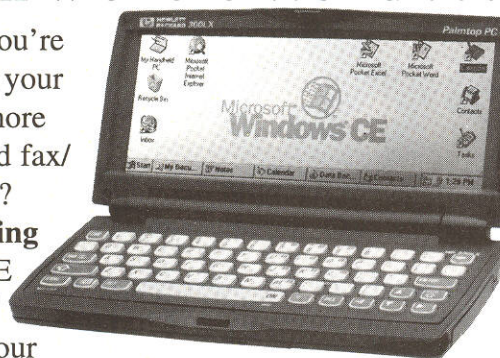
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**Philips Velo 1** — Philips Electronics brings the idea of the mobile office home on the Velo 1 page at: <http://www.velo1.com/>. The opening graphic of this page places you in the front seat of a car while driving through a restaurant.

## Software and Information

**Microsoft Windows CE** — The Windows CE section of Microsoft's Website is located at: <http://www.microsoft.com/windowsce/default.asp>.

Microsoft developed the Windows CE operating system, and they have a lot of good information and downloadable software on their site. Microsoft has links to the Casio and Compaq pages that have the software patch for the power management problem on the Cassiopeia and

the PC Companion, and also an explanation of what the problem is and how and why it may occur. Microsoft has an area on their Website that has all the announcements made by Microsoft regarding Windows CE. This is a good place to check for the latest news for the Windows CE platform. There is also a section for downloading Microsoft applications such as Automap, (which lets you download city maps to your Handheld PC), Microsoft Pocket Internet Explorer (MPIE) (which lets you surf the Internet using your Handheld PC), Powertoy (which contains a Paint program, cascading menus, and remote control so that you can control your Handheld PC with your Desktop unit and more), HPC Explorer 1.1 (the utility that connects your desktop to your H/PC), and the Handheld PC File converter (which allows you to create pocket versions of documents using only your desktop computer). There are sections for

FAQs (frequently asked questions), and links to Microsoft's partners in Windows CE development.

## WWW Sites with Handheld PC Content

The real wealth of the Handheld PC Internet world can be found in the user Websites. Some of my favorites include the following:

**Thaddeus Computing's Handheld PC Magazine Site**— Here we share some highlights of our magazine, plus downloadable software. Located at: <http://www.thaddeus.com>

**WindowsCE.com** — Great links to other Windows CE sites, news and software. Located at: <http://windowsce.com/>

**Craig Peacock's WinCE Page** — Lots of how-tos and links. Craig is a contributing writer to *Handheld PC Magazine*. Located at: <http://homepages.enterprise.net/craig/windowsce.html>

**HotPocket PDA** — See what's going on in the world of Handheld PCs and PDAs. Located at: <http://hotpocket.com>

**Windows CE Software Page** — Links to freeware/shareware for the Windows CE platform. Located at: <http://www.atech.tec.clark.nv.us/~rmcardle/windowsce/>

**Windows CE On-Line**— Links, news, software, and more. Located at: <http://www.arcos.org/worlds>

**WinCE ListServ** — Join this listserv if you want to receive e-mail information pertaining to Windows CE. Located at: <http://www.dillnet.com/wince.html>



**Windows CE Online** — Great links, tips, tricks and downloads.

Located at: <http://www.arcos.org/worlds/>

**Worldwide Windows CE** (AKA Max's Windows CE Page) — News, updates and software links.

Located at: <http://www.ziplink.net/~maxm/windowsce/index.html>

**HPCPage** — From the same people who bring you PDAPage. Find out where to get the best prices on your H/PC and accessories.

Located at: <http://www.hpcpage.com/>

**Handheld PC Users Group of Washington DC** — Links and news from H/PC users in Washington DC to you.

Located at: <http://www.mindspring.com/~theman2/hpc/>

**Chris De Herrera's Website for Windows CE** — This site has lots of good information on pc cards and modems. Chris is a forum leader on AOL.

Located at: [http://members.aol.com/pdc\\_chrisd/wce/wce.htm](http://members.aol.com/pdc_chrisd/wce/wce.htm)

## Usenet Newsgroups and Listserv Mailing Lists

There are also some Usenet Newsgroups and Listserv Mailing lists that are devoted to or carry content for the Windows CE platform. Usenet newsgroups are like electronic bulletin boards where users can post questions and receive answers. With Usenet Newsgroups, you have to go to the list and download the message headers and/or the message bodies. Most ISPs have a news server that you can use. The Usenet newsgroup that is devoted to Windows CE is on Microsoft's public news server - [msnews.microsoft.com](http://msnews.microsoft.com) [news:public.windowsce](http://news.microsoft.com:news:public.windowsce) The Usenet news-

groups that have content for Windows CE are [news:comp.sys.palmtops](http://news.comp.sys.palmtops) and [news:comp.sys.handhelds](http://news.comp.sys.handhelds). These last two newsgroups should be on your ISP's default news server. There are now two Listservs mailing lists that cover Windows CE, Andy Diller's Windows CE Listserv at <http://www.dillernet.com/wince.html> and the WindowsCE.com's Windows CE Talk Mailing list at <http://cgi.skyweyr.com/WindowsCE-Talk.Home>. With a Listserv, you subscribe to the list and when someone posts to the list, an e-mail is sent to you. Most Listservs have interactive and digest versions.

## CompuServe and America On Line

There are also sections on CompuServe and AOL that have

Windows CE content. On CompuServe, there is HPHAND section 17 and PALMB. On AOL there is the WindowsCE special interest group, use keyword WCE to get there. To take advantage of either of these, you must be a member of that electronic bulletin board system.

There are many new sites coming online every day, and there are already too many for me to list them all here. In future issues I will be bringing you what I consider to be the best of the best sites, and I'll try to do it in a little more detail. I apologize in advance if I didn't list your favorite site or skimmed over the real meat of a site I did include. If there is anything that you feel I should have mentioned, let me know and I will take a look at it for possible inclusion in future issues. Have fun!



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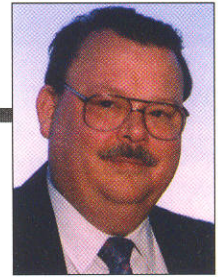
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# Wireless Computing

**Wireless Data and Windows CE: A marriage made in heaven or strange bedfellows?**

**ANDREW SEYBOLD**



*By Andrew Seybold*

When Microsoft announced the Windows CE operating system in September of 1996, and then later, when Bill Gates stood on the stage at COMDEX/Fall '96 to officially unveil Microsoft's hardware partners and to talk about the future, the wireless data community took note.

Many who have invested heavily in the wireless data industry, as well as network providers, wireless modem vendors, software developers, and systems integrators, hope that the Windows CE platform and the accompanying hardware will provide the "killer" application for the wireless data industry.

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## Setting the Stage

The rapid growth in the number of wireless data users projected by analysts and the industry itself has not materialized over the course of the past four to five years. There are many reasons for this. Equipment was too big, networks did not provide adequate coverage, and applications required special "middleware" to run over wireless, and, of course, the perceived price of wireless data was high.

Then RAM Mobile Data was launched in 1992, the "killer" application was thought to have been e-mail. But to send and receive e-mail with a wireless modem, users were required to have two different e-mail addresses—one for their corporate use, and one for wireless. Having two e-mail addresses, carrying around a bulky wireless modem, and not being able to count on wireless network coverage soon burst the e-mail balloon and network providers regrouped, turning their attention to "vertical" or fleet market users.

## Enter Windows CE

The hope is that with Microsoft now in the handheld PC operating system business, and hardware vendors rushing to enter the handheld PC or PDA market with products that run Windows CE, there will be a renewed interest in wireless connectivity, especially to and from handheld devices.

Beginning with the initial group of H/PC announcements during

COMDEX/Fall '96, every major wireless network provider, service provider, wireless modem vendor, and software vendor has stepped up to declare its support for this platform with products and services. However, one major issue remains to be resolved—one that I believe will impose significant constraints on the marriage of Windows CE products with wireless networks and services.

## The Problem

The issue does not concern how to connect to the wireless network. This can be accomplished via PC Card wireless modems or built-in modems. The issue concerns what should be at the other end of the wireless network connection. Today, a handheld PC with a wireless modem can connect to a network to send and receive information over the Internet and to communicate with other wirelessly-enabled devices. However, it is still not easy to connect back to a user's own local-area network (LAN) or desktop computer.

Most LANs are protected from access via the Internet by firewalls. Even if access is permitted to a corporate LAN, it is not an easy task to enable the wireless user to access his or her own desktop computer. Today, such access can be accomplished with a direct connection between a wireless network and a corporate LAN or desktop, but these connections are expensive.

## ABOUT THE AUTHOR

Andrew Seybold heads a computer and communications industry consulting and newsletter company, and publishes the well-respected *Andrew Seybold's Outlook on Communications and Computing*. He has an extensive radio communications and computer background, is recognized as one of the top analysts in these fields, and is a founder and President of the Portable Computing and Communications Association (PCCA).



They also require a high level of commitment from the corporate information managers--people who are, at the moment, not entirely comfortable with permitting dial-up access to their networks, let alone wireless connectivity.

## The Push to Solve the Problem

I believe that end users equipped with first- or second-generation Windows CE devices will begin demanding both dial-up and wireless access to their own resources in sufficient numbers that Information Managers will have to take notice and begin exploring solutions that will enable it.

The driving force will come from the fact that Windows CE devices, to be useful, need to "talk" to their owner's desktop computer in order to synchronize calendars, phone books, e-mail, and other files the user may need while away from the desk. Soon after becoming "hooked" on this easy way to keep current, users will begin asking for the same level of synchronization and access while they are across the hall at a meeting, across the city at a customer's site, across the country in another city, or around the globe.

Information managers who have thus far ignored users' requests for wireless connections will be forced to listen as the number of Windows CE device users grows substantially over the next few years. New Windows CE form factor products that will reinforce the use of wired and wireless communications for information exchange and retrieval will be introduced, further adding to this push.

## What Is the Answer?

The reality is that there is no single answer that will solve the handheld-to-desktop connectivity issue. Microsoft must first enable remote

control of the synchronization process--something not provided for in the current Windows CE release. Different sizes of companies with different types of corporate infrastructures will want different flavored solutions. And security, the greatest issue of all, is of real concern to IS professionals whose job it is to keep their corporate information assets secure from hackers and industrial spies.


## Enter the PCCA

Long before the announcement of Windows CE, a not-for-profit organization called the Portable Computer and Communications Association (PCCA) began developing standards to address a variety of wireless connectivity issues. At COMDEX/Fall, this organization held a meeting to discuss working on solutions to the handheld-to-desktop communications problems. More than sixty-five companies attended, including Microsoft. Since that first meeting, the PCCA has formed three committees and has been working diligently on this project.

The committees are working on the issues of security, hardware and software requirements, and education of the user and information management communities. Public relations projects have been undertaken, as well, to make sure that the association is working with all of the appropriate companies as well as with corporate end users and information managers.

## Windows CE and Wireless

I believe that Windows CE devices coupled with wireless modems are powerful tools in the hands of mobile workers. Cellular phones gave those who are away from their desks the ability to stay in contact with their customers and to check their voice mail. I believe that handheld or mini-PC computers equipped with wireless data

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We need to complete the link for the end user community. Maybe they will want access to information on the Net, but I believe that first and foremost they want to be able to access their own information to update their calendar, check on the status of a project back at the office, pull down a phone number, read their e-mail, and send and receive faxes.

Microsoft's CE operating system in and of itself does not enable these activities. However, Microsoft's entry into the handheld arena certainly has focused attention on this market segment, and Windows CE will play a leading role in building the critical mass necessary to solve these communications issues.

I am fortunate to have been elected president of the PCCA and to be able to work closely with the committees and companies addressing these areas. This magazine, too, has embraced the work of the PCCA and we will be reporting on its progress in these pages. If you would like to learn more about what the PCCA is doing, visit the PCCA Web site at [www.outlook.com/pcca](http://www.outlook.com/pcca).



# Pen-Based Computing

Making a Good Mobile Environment Great

JOHN JERNEY



By John Jerney

Handheld PCs based on the Windows CE operating system have a lot going for them. Small size, capable performance, and excellent desktop integration make it a natural choice for many current Windows users. However, now is not the time to rest on the laurels of early success. In fact, I'd like to suggest that by feverishly pursuing three major areas of development, we may well see a good mobile computing environment evolve into a great one.

These three areas are performance, size and weight, and application development. The good news

is that by coming to the handheld scene a little later than some of the high-profile pioneers, Microsoft has a near-perfect vantage point for reading early customer reactions and matching their wants and desires. Here is my take on what needs to be addressed.

## Performance

Let's face it, we ask a lot from our handheld PCs today. No longer satisfied with simple note taking and address book management, we want it all in a fit-in-you-hand sized package. And that can put a lot of strain on the physical resources, most notably the microprocessor. Fortunately, Microsoft made the strategic decision to design Windows CE as a portable operating system, allowing the company to support multiple processor families with comparatively minimal work.

What this means is that hardware vendors now have the freedom to select the processor that best matches their target market. For devices that require on-board communication, a vendor may select a processor with a built-in DSP (Digital Signal Processor) core. Likewise, for blazing high-speed, another vendor may select something like Digital Equipment Corp.'s StrongARM -- the processor used in the Newton MessagePad 2000 -- running at speeds up to 160 MHz.

For the first round of devices, Microsoft and its hardware partners have selected two RISC processors: one based on the Hitachi SH-3 and

the other employing the MIPS R4100 core. Both processors have excellent performance vs. power consumption characteristics, making them ideal for handheld devices where battery life still ranks as one of the most important considerations among users.

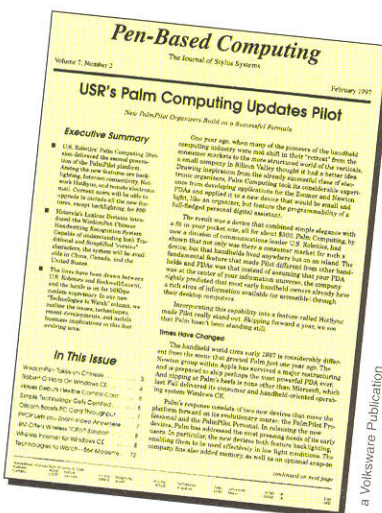
What I'd like to see: Strangely enough, the issue of speed may be more important on handheld platforms than with a desktop computer. Of course, where possible, we want fast performance on all our platforms. However, waiting five extra seconds for Word to open on a desktop is not the same five seconds on an H/PC running Pocket Word. Handheld PC use tends to be event-driven; desktop computers tend to be more user-driven. And often times, events don't wait for your handheld to catch up.

The first version of Windows CE performs acceptably in this regard, though each time you make the device twice as fast, I believe you make it more than twice as useful. I would encourage all vendors to consider 100+ MHz processors for at least one high-end model in their product line. Like the enhanced memory versions of current H/PCs, I think vendors may be surprised by how many customers opt for the high-performance version of their device.

## Size and Weight

So much attention has been paid to the issue of size and weight that it's easy to understand why many vendors believe that what most everyone wants is simply smaller and

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### ABOUT THE AUTHOR

John Jerney is editor of the six-year old industry newsletter, "Pen-Based Computing: The Journal of Stylus Systems," and the Web-exclusive monthly, "mobilis: the mobile computing lifestyle magazine" available at <http://www.volkware.com/mobilis>.



smaller devices. Perhaps the success of U.S. Robotics' PalmPilot has been most instrumental at driving this point home. Current Windows CE devices do a good job in trading off overall size against the competing interests of a functional keyboard and display. Interestingly, however, some of the most enthusiastic attention lately has been focused toward devices that feature larger displays and keyboards, adding functionality at the expense of size and weight.

*What I'd Like to See:* Obviously, there are two ways to go with respect to this issue: larger and smaller. Smaller is difficult using the current Win95-like interface, but Robert O'Hara, a Windows CE development manager, assures me that the operating system is not married to the current interface. According to O'Hara, there's no reason why we can't expect to see Windows CE powering other types of devices including smart phones, advanced pagers, and the like.

Closer to current designs, O'Hara has dreamed out loud about another design he'd like to see in the near future: a flip-back palmtop not unlike Hewlett-Packard's OmniGo 120. Usable in both clamshell and tablet mode (when the screen is flipped all the way back), this type of device is pleasingly comfortable for both typing and writing.

And while smaller and more flexible devices are already on the horizon, I'd like to see Windows CE also go in the other direction, namely appearing in an all solid state (no hard disk) sub-sub-notebook computer. Measuring about the size of a child's notebook and weighing around 1.5-2 lb., such a device would have a small but fully VGA compatible screen (grayscale is fine) and would be as comfortable to carry as a newspaper. Offering basic productivity features, quick synchronization with the desktop, a no-compromise high-contrast screen, battery life measured in days, and a price under \$1000, this type of device could be a breakthrough product.

## Application Development

Herein lies one of the best publicized and perhaps least understood strengths of Windows CE. The platform has two obvious advantages for developers: a familiar user interface, together with a core API (Application Programming Interface) that will be instantly familiar to thousands of existing Windows developers. What this means is that many programmers will already have a leg up in developing for this "mainstream" environment, translating to a broader range of applications delivered soon.

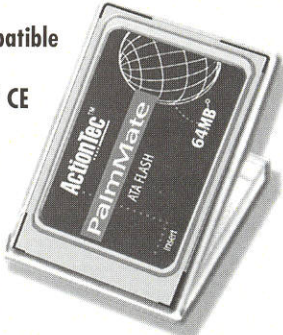
However, as my friend and Windows CE programming wizard John Schettino has pointed out, the transition to the new environment is not entirely trivial. Windows CE operates on small handheld platforms with limited memory and storage. Therefore, it should come as no surprise that the system offers a new memory model along with an object store in place of the more conventional file system on desktop systems. Also, John reminds me that with roughly a quarter of the Windows 95 API available in Windows CE, you need to rethink any notion of a quick and hassle-free port of a desktop application. All this is probably well and good since straight ports would probably produce horrendous H/PC applications. A little consideration for the platform is not a bad idea.

*What I'd Like to See:* In five words, Visual Basic for Windows CE. One of the early strengths of Newton was its high-level object-oriented programming language, NewtonScript. Of course, Apple's sole reliance on this sometimes-slow interpretive language was also an early weakness. However, it enabled literally hundreds of developers to ease their introduction to Newton, and has produced what is perhaps still the largest library of commercial and shareware software for just about any handheld (not

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counting the DOS-based HP LX Series).

Visual Basic for Windows CE, or something like it, would have the same effect in kick-starting two important class of developers: corporate programmers looking for a quick turn-around to custom problems, and the weekend hobbyists looking to transform their H/PC into something that enhances their personal life.

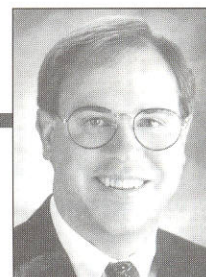
As with any first-generation environment, the most interesting applications are yet to be discovered. Microsoft can be commended for delivering a useful product that matches the most important needs of its core constituents: existing Windows desktop computer users. However, by focusing on these three critical components, Microsoft has the opportunity to redefine the mobile experience and create a winning combination that will be tough to beat anywhere.



# Corporate Solutions

## Handheld PCs: A Corporate Enterprise Computing Solution

CARL MERKLE



By Carl Merkle

Corporate acceptance of PCs ignited the PC revolution. Now, corporations are the biggest buyers of mobile computers, with some companies outfitting their entire mobile workforce with laptop computers to facilitate communications, deploy corporate knowledge and efficiently execute methodologies. I believe that corporations will soon discover the cost and productivity advantages of Handheld PCs over laptops. Using e-mail and Web-based access to corporate knowledge and corporate data warehouses, H/PCs will become an integral part of corporate computing, insuring the success of H/PCs.

### Locked-up Information

Corporations have invested a lot of time and money in their "legacy" systems and "data warehouses." The purpose of these is to capture information and make it available to decision makers in the corporation. It is estimated that over 70% of worldwide corporate data is housed in mainframe systems. The problem with such systems is that their size and complexity often make it difficult to get at the information when it's needed. And when it is received, it is often not formatted in a useful fashion.

There is a rapidly growing trend in large organizations to "Web-enable" data access, enterprise computing and communications. This means that the interface used to look-up and access data and to add new data is a simple Web browser. Web-enabling data access standardizes on an inexpensive, easy-to-learn and use interface throughout the organization.

Training is easier, deploying Web-based applications is easier, and more people are able to access the information they need to be productive.

The corporation still has to create databases and other applications that can be accessed via a Web interface. But Web-enabled data access is getting easier to build. In the past, building a Web application would have meant mastering HTML or CGI -- not easy to pick up quickly. But new Web tools are making it possible to Web-enable internal applications with fewer learning curve headaches. Also, over the next year several vendors will roll out products that make browser-to-mainframe connectivity more common.

### A history of network computing

To oversimplify, the first networks were based on the mainframe. There was only one computer, locked away in a room somewhere. Terminals with keyboards and screens were networked to it and shared its resources.

Then the desktop PC came along. It could work by itself and was easier to use to manipulate and visualize data than a mainframe. Soon PCs were connected by client/server networks. The growth of client/server networks took off while mainframe growth stalled. As client/server networks became larg-

er, corporations faced the problem of the "fat client."

A "fat client" is a powerful PC or laptop with large storage capacity and large storage needs. Fat clients are expensive, their hardware and software seem to quickly become obsolete, and they require a lot of maintenance and support. In addition, there are data redundancy and data synchronization problems when sharing data among multiple PCs. Also, there's a need for the corporation to standardize on a common PC hardware and software platform to encourage data and knowledge sharing and reduce training costs. The Gartner Group, a computer consulting and market research firm, estimates that the cost of running a single networked PC in an organization under the client/server model ranges from \$8,000 to \$13,000 per year -- too much to deploy PCs to everyone in many organizations.

Many companies have been looking for a more manageable, simpler, and cost effective solution. They would like to deploy PCs to everyone in their organization to obtain the benefits of facilitating communications, and to deploy corporate knowledge and efficiently execute operations -- but fat clients cost too much. The so called "thin-client" model (PCs with smaller storage and smaller storage needs because the network is used for storage) using Internet browser technology has emerged over the past couple of years as an effective solution.

### ABOUT THE AUTHOR

Carl Merkle is the Director of Corporate Projects for Shier Systems & Software, Inc., and is responsible for managing delivery of ultra-mobile computing and communications business solutions to corporate accounts. A CPA by background, Carl was previously a senior manager with Ernst & Young, LLP. Carl lives in Irvine, California, with his wife and three children, where the use of handheld PCs is woven into the fabric of their daily activities. He can be reached by e-mail at: Carl@shier.com or by voice-mail at 714-559-1142.



Browsers are easy to use, run on all popular computer platforms including older model PCs, allow bi-directional transfer of data, and depending on the browser used, can display Web pages in visually appealing formats. With Web search engines, a user has access to terabytes of information -- on the World Wide Web, or on a corporate Intranet tied into legacy systems and data warehouses.

## Corporate Intranets

"Intranets" are private networks based on Internet standards. They use the same technology as the Internet (i.e., use the same Web browsers to read HTML documents, use of linked documents, e-mail, chat groups, etc.).

The benefits of Web-enabled data access are making Intranets even more popular with corporations than the Internet. According to IDC, a computer consulting and market research firm, in 1996 Web server sales for Intranets (at 214,000 units) outsold Web server sales for Internet use (at 81,000 units). That's more than two and a half times the volume!

This trend will continue because companies deploying applications using browser technologies are experiencing lower computing costs, longer equipment life cycles, lower development costs and higher returns on their investment. The Patricia Seybold Group, a computer consulting firm, believes that as soon as 1998, a full 50% of all corporate database queries will be executed by Web browsers.

## Handheld PCs: An ideal mobile Intranet terminal

Web-enabled computing and communications allows individual members of the organization to capitalize on the resources of the entire organization to solve problems, to

improve processes, and to allow the organization to do things that it never would have dreamed possible. Unfortunately, desktop computers stay on desktops and laptop computers stay unused in hotel rooms or car trunks. Mobile professionals are often cut off from the company -- and they're the ones who most need to stay in touch.

Web-enabled data is easily accessible anytime-anywhere to users of Handheld PCs running the Windows CE operating system. Handheld PCs slip easily in a pocket and come with a pocket version of Microsoft's Internet Explorer. Web-enabled data is accessible via a landline modem or wireless connectivity. In many circumstances Web access to corporate information using "thin client" handheld PCs is more productive and cost effective than access to corporate information using traditional forms of mobile computing with "fat client" laptops.

A number of e-mail software programs have been developed for Handheld PCs and more are on the way. These will allow the Handheld PC to work with all of the major e-mail systems. This will clear the most important stumbling block to the wide-scale corporate use of handhelds in the past, which is that previous handhelds did not integrate well with all the major corporate e-mail systems. Furthermore, using the e-mail system like we do in our own company, a single e-mailed message will be routed to multiple locations, such as the addressee's desktop and to the addressee's handheld PC.

Things we take for granted today that make living more convenient, such as the telephone, television, automobiles and ATM machines, are all the result of technological innovation, and all met with early resistance. H/PCs, with their ultra-portability, instant on-off, and their ability to remotely connect people-to-people and people-to-information, make things possible that were never possible before with

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**PocketPad** is an easy to use, simple digital ink notepad for your Windows® CE-based Handheld PC. **PocketPad** utilizes the pen input from the screen for a quick way to capture your ideas, record meeting notes, and draw diagrams and sketches as if you had a pen a paper.

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more traditional forms of computing. Ultra-portability and excellent connectivity to other computers mean there is no excuse for people to leave their computers behind. The cost and productivity advantages of combining Intranets and H/PCs to access, capture, create and transmit new corporate information when it's needed, anytime-anywhere, far outweigh the disadvantages of small screens and small keyboards.

## A regular column

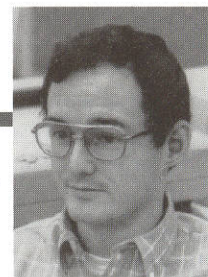
This article launches the Corporate Solutions Column of *Handheld PC Magazine*, which will be a regular feature. We'd like to hear your story. Have you made effective use of handheld PC technology? What issues have you faced in integrating handheld PCs into your company? What other technologies are you integrating it with? Has the return on investment been worthwhile, and how are you measuring success? What improvements would you like to see made to the platform? To give us your feedback or to contribute corporate handheld PC solutions profiles, the author can be reached by e-mail at [Carl@shier.com](mailto:Carl@shier.com).



# Programmer's Corner

## Windows CE— Not Quite a New Game

EVERETT KASER



By Everett Kaser

Just when you think you know everything (well, at least about programming), they change the game on you once again. The new family of H/PCs brings us YAWA (Yet Another Windows API): the Windows CE operating system. If you wish to develop programs for the Handheld PCs (or port your Win32 programs to the H/PC's) you will need to become familiar with the Windows CE environment, and how it differs from previous versions of Windows. Fortunately, the major differences are pretty obvious and reasonably small. Unfortunately, the minor differences are many, and may cause you hours of "challenge."

### Get the right tools

The first step is to acquire the tools needed:

1. The Windows CE development environment ONLY runs on the Windows NT 4.0 operating system, so you will need to have a platform running Windows NT 4.0.
2. You will need Microsoft Visual C++ version 5.0.
3. You will also need Microsoft Visual C++ for Windows CE. This product is separate from, and loaded on top of, the regular Visual C++. It only works with version 5.0 or later.
- 4) Finally, you'll need the Microsoft Windows CE Software Developers Kit (SDK/DDK).

The first three above you'll need to purchase from Microsoft. Graciously, the fourth item (the Software Developers Kit) will be available for free from Microsoft's web site ([www.microsoft.com/windowsce/developer](http://www.microsoft.com/windowsce/developer)). It will also be included with the MSDN CD-ROMs, as well as being included with Visual C++ for Windows CE.

### The same, but different

Programming for Windows CE is very similar to programming for Win32 for Windows 95 and Windows NT. However, there are important differences. To properly document all of them would fill a large book (and will, no doubt, fill MANY large books at your local bookstore over the coming years). The remainder of this article will mention some of the more significant things a Win32 programmer will need to be aware of when programming for Windows CE.

Windows CE is a subset of Win32, containing about one half of the functions. The current version (1.0) does NOT support ActiveX, DDE, Multimedia, ODBC, OLE, COM, printing, or MDI (talk about alphabet soup!). There are keys missing from the keyboard (Insert, Delete, ScrollLock, Pause, NumLock, PrintScreen, and the function keys). There's no mouse (but it's mostly replaced by the stylus and touchscreen display). There's no

color on the display (just four shades of gray) and no custom palettes, no TrueType fonts, and no coordinate space transformations. There's no Metafiles and no concept of the "current point" (so most line drawing functions are not supported; PolyLine must be used instead). There's no Arc or Pie (use Ellipse), and no user-defined cursors (only an alternate predefined "hourglass" cursor may be selected). Bit blitting is limited to the BitBlt function. There's no concept of a "current directory" (each application is responsible for keeping track of the path to its own files and a "current directory" if it wants to have one). There are no cascading (or hierarchical) menus. There are no "top-most" windows, no maximize/minimize buttons, and the window size is fixed when it is created and may not be modified while in use. Windows CE uses Unicode strings, not ASCII, although ASCII is supported for exchanging text files with other environments.

Some functions have modified parameter values, and some structures have been changed (like WINCLASS and CREATESTRUCT). An application's title, menu, and tool bar are integrated into a single "command bar," and the system "task bar" ALWAYS shows there's no "auto hide." The only common file dialog boxes that are supported are Open and SaveAs. Windows CE is multi-threaded, but only supports Critical Sections and Events. If you

### ABOUT THE AUTHOR

Everett Kaser worked for Hewlett-Packard for 20 years as a software engineer, most recently helping to develop the HP 95/100/200LX palmtop PCs and the HP 5000/5500/5700 laptop computers. He left HP in Spring 1997 to run his own software company where he is Chief Wizard and Duke of the Realm. His company produces logic and puzzle games for PCs, which are available from his Website at: <http://www.kaser.com/~everett>



use mutex or semaphores in your Win 95 or Win NT application, you will need to modify those to use Critical Sections instead.

## Be frugal with the systems

Windows CE help files are written in HTML, a direction that Microsoft seems to be going with virtually everything these days. The HTML gets "compiled" into a compressed help file. However, help files should be VERY restricted in size, due to the ever-present memory limitations in H/PCs. Only include the REALLY important (and non-obvious) information in the help file. Always be nice to your customers. Remember that many of them won't have the top of the line machine with maximum RAM that you, as a developer, probably have.

Another area where you should be cautious about over-using resources is the Registry (which, of course, must be stored in RAM). Keep your Registry entries few and small. Also be very careful using the PeekMessage function. It never blocks, which prevents the CPU from going into "idle." This drains your customers' batteries very quickly, and your customers WON'T be happy about THAT!

## A very capable environment

Even with all of that said, the Windows CE environment is still a very capable one. It has been carefully tailored for the small, handheld, battery-powered platforms upon which it's intended to run. Most of the removed functionality concerns things that won't work well on the limited resources of a handheld computer. The initial H/PC design specified a minimum of 2 Mb of RAM, and that's the amount contained in most of the machines currently on the market,

although there are upgrade options on some of them to 4 and 6 Mb. This memory size is even more restrictive than at first it seems, as there is no hard disk. This RAM must hold the long-term program and data storage, as well as provide data space memory for the OS (which executes out of ROM) and execution and data space for RAM-based applications. Because of this, Windows CE developers will have to acquire a different attitude and a new set of skills targeted at small footprint applications. On a 2 Mb machine, the typical user will probably have about 1 Mb set aside for storage. This leaves 1 Mb for program memory, of which about 400 Kb is used by Windows CE and the shell. According to Microsoft, "Typically, 600 Kb is plenty of stack and heap space for running all of the built-in Windows CE applications, even simultaneously. This amount will usually suffice for running additional ISV applications as well." This may be true, but you should still pay VERY close attention to the available resources during the design phase of your project, BEFORE you start coding that first line.

Screen sizes are initially 480x240 with four shades of gray. Expect these to get "bigger" (as the initial Hewlett-Packard machine already is), but design with the smallest one in mind. Here's a pointer regarding screen size: you can figure out the maximum allowable size for your window by calling GetSystemMetrics to get the screen size and the height of the command bar (SM\_CYMENU), and subtract the command bar height from the screen height. Most "normal" applications will run full-screen on a Windows CE platform (minus the system task bar at the bottom), unless the application is specifically intended to run in a small window (like a clock or calculator application).

Microsoft says that, because of the strong similarities between Windows CE and Win32, porting a Win32 application to Windows CE should be easier than starting over, but that the hardware limitations may require significant redesign. That is probably overly optimistic, as very few Windows applications of any significance are small enough to not totally trash the available resources on an H/PC platform. Certainly, some code segments may be pasted from your Win32 application code into your Win CE project, but I strongly recommend that you look at the resource limitations of an H/PC before starting work on your project, and then begin a fresh design targeted at the new platform. Once that design is done, then you can "steal" a few code snippets from your full scale application as you begin implementing the H/PC version.

Another notable difference between previous Windows platforms (excepting NT) and the H/PCs is the use of non-Intel CPUs and architectures. The first machines on the market use either the Hitachi SH3 or the MIPS processors. The Windows CE Visual C++ product comes with cross-compilers for both of these platforms, and Microsoft has announced plans to support Intel x86, Motorola PowerPC, ARM, and the AMD ElanSC400 processors as well. Because of these different CPUs, you will need to recompile your application for each CPU that you want to target and distribute multiple copies of the executable, one for each CPU.

That's a brief overview of some of the things you will encounter when you try to develop an application for Windows CE. It's not a job for the faint of heart, but experienced Windows programmers should be able to adapt to the new environment very quickly.



# YOUR H/PC

Useful Information Specific to **YOUR** Handheld PC

*[In future issues this section will be devoted to information and tips specific to each Handheld PC.]*

All of the Handheld PCs described in this section have a number of things in common — most importantly the Windows CE operating system. Below is a quick look at the common features of Windows CE.

## WINDOWS CE

Microsoft® Windows® CE is an open, scalable operating platform for a broad range of communications, entertainment and mobile-computing devices. The Windows CE operating system was designed to provide an easy-to-learn user interface incorporating many elements of the familiar Windows user interface. All of the Handheld PC incorporating Windows CE come equipped with companion applications that work with the personal information management and productivity applications included with the Windows CE operating system.

The **Windows CE Handheld PC Explorer** provides synchronization between Windows CE Handhelds and Windows 95/Windows NT 4.0 desktops. When running, it automatically detects connections to your handheld PC when you dock it

with your Windows-based PC, initiates synchronization of the Information Manager and Schedule+ 7.0a, and automatically or manually backs up your handheld PC data if you configured it to do so. It incorporates a browser view of your handheld PC for managing files and folders, and for transferring and converting documents to and from the handheld PC.

Handheld PCs running the Windows CE operating system come with an information manager that includes a **Calendar**, **Contacts** and **Tasks** modeled after Microsoft Schedule+. The Calendar offers day, week and agenda views, and can remind you about appointments. Tasks let you mark due dates, set priorities, make notes and assign project categories. Contacts lets you store addresses; phone, fax and e-mail address, and personal notes. Windows CE seamlessly synchronizes this data with Schedule+ 7.0a on your desktop.

The Windows CE operating system comes with accessories and utilities that include a two-city **World Clock**, **Calculator**, **Solitaire**, and versions of popular Microsoft applications (**Pocket Excel**, **Pocket Word**, and **Inbox** for electronic mail) as well as **Internet Explorer**. These pocket versions are designed as companion applications to their desktop counterparts, Microsoft Word and Microsoft Excel, and contain the set of features essential for mobile professionals.

Windows CE is supported by a

development environment based on established Windows programming standards. This means that it takes advantage of the existing expertise of tens of thousands of Windows programmers, familiar off-the-shelf programming tools, and a comprehensive subset of Win32 APIs. This will translate into plenty of third-party software solutions for the new Handheld PCs.

In the long term, Microsoft plans to use the "kernel" of the Windows CE operating system for other computer-based consumer electronic devices. Examples of future Windows CE devices might include "wallet" PCs, wireless pagers and cellular smart phones, next-generation entertainment and multimedia consoles, Internet access TVs, Internet Web phones, Global Positioning Systems for the car, plus other household appliances.

## CASIO



Cassio Cassiopeia

**The Casio Cassiopeia** — Casio's Handheld PC was one of the first



Handheld PCs to utilize Windows CE. The pocket-size Cassiopeia weighs less than a pound and features a 480 x 240-dot LCD display with a backlight, a pen touch sensitive screen, an easy-to-use keyboard, and a standard PC card expansion slot. Cassiopeia also features a CPU based on the SH-3 processor, which is one of Hitachi's high-performance SuperH(TM) RISC engines.

Casio is offering three Cassiopeia configurations, 2 Mb, 4MB and 6MB of internal RAM. In addition to the internal RAM, each model of the Cassiopeia comes with 4 Mb of internal Read Only Memory, containing the Windows CE operating system and other pre-installed software. All the pre-installed software runs from ROM, which means the user has more of the RAM available for running other programs and for data storage.

The Cassiopeia features an RS-232C serial port, standard on desktop PCs, and an infrared port for short-distance wireless communications with an infrared-port-equipped desktop.

The Cassiopeia weighs less than 13 oz., with batteries and can be folded into 1" x 6 7/8" x 3 5/8". A fresh pair of AA main batteries will power the Cassiopeia for up to 20 hours. The backup battery is good for up to five years when main battery is replaced immediately after appearance of low battery message, or one month when unit is left without main batteries.

#### **Additional software:**

In addition to the built-in Windows CE operating system and other pre-installed software, the Cassiopeia comes bundled with a selection of business-oriented applications, including:

**bFAX** — Enhanced by bsquare development allows you to easily send faxes and CASIO QV Digital

camera image files directly from your Cassiopeia.

**CASIO QV-LINK** — Exclusive Digital camera connection software for controlling camera presentations with your Cassiopeia and for transferring images to and from QV Digital cameras (using a separately purchased connection cable).

**QuickNotes Electronic Ink Pad** — Use QuickNotes by CIC to quickly and easily capture your handwritten notes, ideas and sketches.

**EncloseIt** send e-mail attachments — EncloseIt by LandWare allows you to e-mail any file from your Cassiopeia. Special UUencoding allows you to transfer and receive attachments via the InBox. \*

**Financial Consultant Calculator** — Use the Casio exclusive Financial Consultant Calculator developed by LandWare for financial, calendar and percentage calculations, cash flow, analysis, and more.

**Virtual Courier Lite** provides remote e-mail — Virtual Courier Lite from LandWare enables you to remotely retrieve e-mail from cc:Mail and Microsoft MS Mail / Exchange local area network e-mail systems. \*

**IntelliMigrate** provides handheld data import — IntelliMigrate by Puma Technology is designed to easily transfer all calendar, contact, and action item information from other handheld devices to the Cassiopeia.

**IntelliSync** provides desktop synchronization — Free trial version IntelliSync for Windows CE by Puma Technology to synchronize your Cassiopeia with many additional popular PC-based information management and scheduling applications.

**SkyTel Messenger** provides two-

way wireless messaging — SkyTel Messenger software lets you send and receive wireless messages 500 characters long with a SkyTel 2-way pager and cable available separately.

**PageCard** provides one-way wireless messaging — PageCard connection software by Socket Communications for receiving wireless one-way text messages using your Cassiopeia and a separately purchased Socket PCMCIA pager card.

**pcANYWHERE CE** provides remote PC access — Symantec pcANYWHERE CE can be used to remotely access PCs, applications and information from the palm of your hand. \*

\* Fax transmission and remote access require the use of a separate modem.

**Casio A-10** — \$399.95,  
**Casio A-11** — \$499.95,  
**Casio A-11Plus** — \$699.95.

#### **Accessories and Other Available Options (prices suggested retail)**

**Docking station set (UT-S11 Set)** - Enables easy connection to a desktop computer. Also includes rechargeable battery back, battery charger and AC adapter. -- \$149.95

**AC Adapter set (AC-S10 Set)** - Includes a mini-docking station and AC adapter (included with A-11Plus). -- \$79.95

#### **For more information, contact your local Casio dealer or:**

Casio, Inc.  
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Dover, New Jersey 07801, USA  
Phone: 201-361-5400  
Fax: 201-361-3819  
Online: [www.casio.com](http://www.casio.com)  
or [www.casiohpc.com](http://www.casiohpc.com)



COMPAQ



Compaq PC Companion

**The Compaq PC Companion —** Weighing less than a pound and small enough to fit in your pocket, the PC Companion is the smallest computing device available from Compaq. The Compaq PC Companion comes standard with Microsoft Windows CE operating system and other built-in Windows CE software. Compaq OEMs its PC companion from Casio, which means that it has the same features as those described above in the Casio section.

The PC Companion is for those who need a tool to access and synchronize both business and personal data instantly. This includes: traditional corporate customers who desire to travel light and need the ability of staying connected with the office; individuals in either small or large companies who want a tool for information access and exchange, as well as better time management; sophisticated consumers with busy schedules and active lives wanting to more efficiently manage their time and information.

### Key Features and Benefits

Minimum 2 Mb of RAM (upgradeable) provides plenty of room to run installed applications and store volumes of data. 4 Mb of ROM provides ample storage capacity for the Windows CE OS and included applications. 480x240 backlit, touch-sensitive display takes ease-of-use

to the next level. Type II PC Card support for adding modem communications and additional data storage with flash memory cards. 6.8 x 3.6 x 1" form factor that weighs only 13.4 ounces and allows for convenient, easy traveling. Preinstalled pocket versions of Microsoft Information Manager, Word, Excel and the Internet Explorer provide for time management, data entry and access, Web browsing and e-mail exchange, all in the palm of your hand.

Desktop versions of the Handheld PC Explorer and Information Manager provide easy data exchange and schedule synchronization. Compaq also offers current buyers of the PC Companion, two must have applications, Backup and Restore utilities for a complete backup of RAM to a PC Card, and River Run Software Group's Mail On The Run for Windows CE, for remote connections to Microsoft Mail and Lotus cc:Mail.

Standard AA batteries give up to 20 hours of battery life without replacement. AC power support allows for extending battery life by using standard AC power instead of batteries. Docking cradle support means quicker, easier local connectivity with a primary PC. Infrared port allows for wireless information exchange with another Compaq PC companion for quick, easy file sharing. Lithium back-up battery prevents data loss caused from lack of primary battery or AC power. One year limited warranty backed with Compaq's industry-leading service and support offerings for customers in the United States.

### PC Companion C120

(Part number 266500-001) - \$399  
2Mb RAM, 4Mb ROM, 480x240 Touch Sensitive Display, 2AA batteries, Serial Cable

### PC Companion C120+

(Part number 266502-001) - \$499  
2Mb RAM, 4Mb ROM, 480x240 Touch Sensitive Display, 2AA batteries, Serial

Cable, 14.4 LP PC Card modem, AC Adapter, QuickConnect

### PC companion C140

(Part number 266550-001) - \$499  
4Mb RAM, 4Mb ROM, 480x240 Touch Sensitive Display, 2AA batteries, Serial Cable

### Accessories and Other Available Options (prices suggested retail)

**2 Mb Memory Expansion** (Part number 266506-001) - Use to increase storage space and increase capacity to run multiple programs. Price: \$99

**10 Mb Flash RAM** (Part number 266517-001) - A type II PC card that allows you to increase storage and create secure backups by adding 10 Mb of ATA-compatible flash RAM storage. Price: \$299

**14.4 LP PC Card Modem** (Part number 266507 -001) - A "battery-friendly" 14.4 Kbps modem that lets you check e-mail and browse the Web. Allows for use of up to one hour on AA battery power. Price: \$149

**Power Pack** (Part number 266514-001) - Provides you with everything you need for rechargeable power operation, including Quick Connect, AC adapter, NiMH battery pack, and battery charger. Price: \$95

**Combo Pack** (Part number 266520-001) - Includes an AC adapter and Quick Connect (a mini port replicator which provides serial, AC adapter, and battery charger ports) for quick and easy PC connection. \$38

**Convenience Cradle** (Part number 266513-001) -- Use this executive-style cradle to provide quick docking for your PC Companion. Connects to both Auto-Sync cable and Battery charger connections. Also includes convenient stylus holder. Price: \$35



**AC Adapter** (Part number 266509-001) - Connect the AC Adapter to the Quick Connect to power your PC Companion while docked. \$19

**Battery Charger** (Part number 266511-001) - Use with the AC Adapter to charge the optional NiMH rechargeable batteries. The Battery Charger connects directly with the PC Companion, Quick Connect, or Convenience Cradle. \$29

**3-Pack Stylus** (Part number 266515-001) - Three-pack of spare styluses to keep on hand in case you misplace your stylus. Price: \$6

**Carrying Cases** (Part number 266572-001) - Provides cushioned protection for your PC Companion while out of the office. Has room to store PC card options, notes, business cards, and credit cards. Price: \$29

**Slipcase** (Part number 266573-001) - Sleek, handy slipcase provides protection for your PC Companion. Price: \$10

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Compaq DirectPlus Phone: 800-888-0593 (in the U.S. only). Online: <http://www.compaq.com>

HEWLETT-PACKARD



Hewlett-Packard 300LX/320LX Palmtop PC

**Hewlett-Packard 300LX / 320LX Palmtop PC** — HP's new Windows

CE-based Palmtop PCs are available in two models. The HP 300LX model with standard features, and the 320LX model with more memory and extras, including a docking cradle. The 300LX features 2 Mb of internal RAM, reflective display, and PC Card Type II slot. Estimated retail price is \$499. The 320LX is designed with 4 Mb of internal RAM, backlit display, PC Card Type II slot plus Compact Flash slot, and docking cradle. Estimated retail price is \$699. Each Palmtop is 7.2" x 3.67" x 1.1" and weighs 15.6 oz. with batteries.

Both models include the updated version of Microsoft's Windows CE operating system (Version 1.1), the standard Windows CE built-in applications (Pocket Word, Pocket Excel, Pocket Internet Explorer, Task Manager, Calendar, Contacts, Calculator, World Clock, Terminal application (TTY, VT-100 emulation), Remote Networking (for connecting to remote access servers), and Solitaire. Both models also come with a 115k IrDA (infrared port), and RS-232C (serial port). The packages for the units will include synchronization cables, PC software for synchronization, a free copy of Microsoft Schedule+ 7.0, and a CD-ROM with

trial versions of several Windows CE applications. The HP 320LX is shipped with an AC adapter along with the docking cradle.

HP 300LX/320LX Palmtop PC users will be able to purchase a variety of accessories, including PC Card flash, 2 Mb or 4 Mb of Compact Flash, AC adapter, spare pens and a leather case/wallet.

Both models can use AA NiCad batteries and recharge in the Palmtop PC when it is connected to the AC adapter. When put in the docking cradle with the AC adapter connected, data files will synchronize automatically while recharging the batteries.

HP's backlight technology is based on LEDs and a flat panel "light pipe" to evenly distribute the light to the LCD. The result, according to the manufacturer, is a backlight that is substantially brighter than any other in this class of products, yet runs on a fraction of the power of other systems.

HP's units will allow printing direct from Pocket Word and the PIMs, via both IR and RS-232C ports.

HP's units allow programs running out of ROM or RAM to use data

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stored on flash cards. Earlier versions of Windows CE did not allow this. There is also a backup utility for PC Cards and CompactFlash. This protects a user's PIM files when they are mobile and not able to back their data up to a PC every day.

The new HP Palmtop PC uses a 640 x 240 pixel VGA display, allowing you to get the full view of your information. According to HP, this means you can: View most Web pages fully with no need to scroll sideways; read e-mail easily, with large, clear characters displayed across the display; see more cells in standard spreadsheets with the wide version of Pocket Excel; read complete tables in Pocket Word.

#### **Additional Software Included Free on CD-ROM**

**H/PC Explorer version 1.1** — desktop PC software for connecting HP palmtop PC to PC)

**HP 100/200LX & HP OmniGo 100/120 translation software** — for appointment book and phone book.

**bFAXPro** from bsquare development — a send-and-receive fax solution.

**Mail on the run!** from River Run Software Group — for access to corporate cc:Mail, Microsoft Mail, Lotus Notes Mail and Microsoft Exchange e-mail systems.

**Pocket On-Schedule** from Odyssey Computing, Inc. — a contact manager with PIM functions.

**Wireless solutions bundle** from Ardis — supporting fax, e-mail and access to the Internet.

**Wyndmail/CE** from Wynd Communications — a wireless solution providing fax, e-mail, voice-to-text and text-to-voice communications.

**HP 300LX** with 2 Mb RAM (Product # HP F1220A) — \$499

**HP 320LX** with 4 Mb RAM, Compact Flash Card Slot, Backlit (Product # F1221A) — \$699

#### **Accessories and Other Available Options (prices suggested retail)**

##### **HP CompactFlash Memory**

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**HP Docking Cradle** (with enhanced model) (Product # HP F1224A) -- \$29.99

**PC Synchronization Cable** (with both models) (Product # HP F1223A) -- \$na

**HP Leather Case** (Product # HP F1227A) -- \$69

**Stylus 3-Pack** (Product # HP F1225A) -- \$9.99

#### **For more information, contact your local HP dealer or:**

Hewlett-Packard Company, Phone: 800-443-1254; Online: [www.hp.com/handheld](http://www.hp.com/handheld)



Hitachi Handheld PC

**The Hitachi Handheld PC** — Hitachi's Handheld PC comes with the standard Windows CE operat-

ing system and applications described above in the Windows CE section. It features one Type II PC Card slot, comes with both keyboard and stylus, and offers both RS-232C serial port and an IrDA infrared interface. Hitachi's Handheld PC computer uses Hitachi's 32-bit SuperH RISC architecture-based SH3 microprocessor, which provides efficient processing and low power requirements for long battery life. The Hitachi H/PC weighs 13.1 oz., including battery. It measures 6 5/8" x 1" x 3 7/8".

Hitachi Handheld PC (HPW10E2 with 2 Mb of RAM) — \$499.95

Hitachi Handheld PC (HPW10E4 with 4 Mb or RAM) — \$599.95

Hitachi Handheld PC (HPW10E4MB with 28.8 bps modem built in) — \$699.95

#### **Accessories and Other Available Options (prices suggested retail)**

**AC Adapter** (HPWMB10) — \$49.95

**Serial Cable** (HPWSC10) — \$24.95

**28.8 bps Modem Board** (HPWMB10) — \$179.95

#### **For more information, contact your local Hitachi dealer or:**

Hitachi Home Electronics (America), Inc.,  
3890 Steve Reyonlds Blvd.,  
Norcross, GA 30093, USA  
Phone: 770-279-5600  
or 770-279-5696;  
Online: [www.hitachi.com](http://www.hitachi.com)

**The LG Phenom** (top next page) — The LG Phenom is lighter and smaller than the other Handheld PCs, weighing less than 12 oz. and measuring only 6.45" x 3.76" x 1." LG Electronics OEMs its LG Handheld Personal Computer to



## LG ELECTRONICS



LG Phenom Handheld PC

Hitachi, which means that it has the same features as described above in the Hitachi section. Like the other Handheld PCs, the LG Phenom comes with the Windows CE operating system and standard Windows CE applications built in. It features one Type II PC Card slot, comes with both keyboard and stylus, and offers both RS-232C serial port and an IrDA infrared interface. There is also a version of the LG Phenom with a built-in 28.8kbps fax modem.

The LG Handheld PC also uses Hitachi's 32-bit SuperH RISC architecture-based SH3 microprocessor, which provides efficient processing and low power requirements for long battery life. It is powered by two AA rechargeable batteries which are included in the standard packaging.

**LG Phenom with 4Mb RAM — \$599\***

**LG Phenom with 4Mb RAM and built-in 28.8kbps fax — \$699\***

\*All accessories are included in the standard package (4 rechargeable batteries, battery recharger, power adapter)

**For more information, contact your local LG Electronics dealer or:**

LG Electronics, attn: Greg Ryan;  
Phone: 201-816-2098; Fax: 201-816-2188; E-mail: [gryan@lge.co.kr](mailto:gryan@lge.co.kr);  
Online: [www.lge.co.kr](http://www.lge.co.kr).

## NEC



NEC MobilePro in Docking Station

**The NEC MobilePro** — The NEC MobilePro Handheld PC is a lightweight, mobile PC companion running the Microsoft Windows CE operating system and applications. The MobilePro series offers you information in the palm of your hand and gives you the freedom to carry, create and edit your most important data while away from the office; communicate with the rest of the world electronically; and instantly synchronize your H/PC's data with your Windows 95 "home base" desktop or laptop PC, automatically.

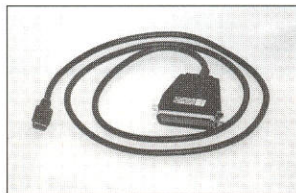
The NEC MobilePro comes loaded with the standard Windows CE applications: Microsoft Pocket Word, Pocket Excel, Pocket Internet Explorer and Inbox (for e-mail). The MobilePro has complete PIM functionality including: Calendar, Address Book, ToDo List, Calculator, and a World Clock.

Data from other popular business programs can be imported into the Microsoft Pocket applications, including contact lists, databases and so forth. Additionally, many independent software vendors are using the Windows CE standard development environment to develop applications - ranging from handwriting recognition to fax applications.

Powering the MobilePro H/PC is NEC Electronics' VR4101 processor, a high-speed, low-power 64 bit MIPS RISC processor. The NEC VR4101 incorporates cache memory and many peripheral circuit interfaces, such as serial, keyboard and audio. The NEC chip offers advanced battery-conservation benefits by offering three types of power-management: Standby, Suspend and Hibernate. NEC MobilePro H/PC users can expect

## New! Link-A-Printer II

### Smaller size & Attached cable



Link-A-Printer II is a serial to parallel converter that allows direct printing from your Windows CE HPC to any parallel printer. It also works with the HP 100/200/300LX and the HP OmniGo. Some HPCs may require bPrint software.

**\$79**

## Also Available Link-A-Printer I

Requires HPC to computer connectivity cable and optional battery. Features auto on/off fixed 9600 baud

**\$59**

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to get 20-40 hours of usage from two disposable AA batteries.

Synchronization and power accessories that come with the NEC MobilePro 400 include a docking cradle, (requires an AC adapter), an AC adapter, a direct connection cable and a modem cable.

## Accessories and Other Available Options (prices suggested retail)

Docking Cradle (S1424-14) — \$46.95

Direct Cable (S1424-12R) — \$19.95

NiMH Battery (S1424-15) — \$28.95

Battery Charger (S1424-16) — \$88.95  
(Battery incl.)

AC Adapter (S1424-11) — \$34.95

Stylus Pen (3-pk) (S1424-17) — \$6.95

Carrying Case (S1424-20) — \$39.95

## For more information, contact your local NEC dealer or:

In the U.S., for the dealer nearest you or for more information on the NEC

MobilePro H/PC and its accessories, call 888-306-4636. In the U.S., for technical support, call 800-632-4525.



Philips Velo 1

**The Philips Velo** — The Philips Velo 1 Handheld PC comes with the standard Windows CE operating system and applications described above in the Windows CE section. It differs from other Handheld PCs in that it has a built-in fax/modem to connect to the World Wide Web and access Internet e-mail, cc:Mail and MS Mail systems. The Velo also comes with a unique voice memo system which lets you record, store and playback audio files.

The Velo also comes with two Intel-based Miniature Card expansion slots, which let you upgrade both your memory and your operating system simultaneously. An external Type II PC Card module lets you add a PC memory card to expand your memory further.

A phone cord, Docking station, and AC adapter are included with the Velo 1.

## Accessories and Other Available Options (prices suggested retail)

### Extra Velo Docking Station

(Part # A-DCK001-WW) — \$79.99

### NiMH battery pack option

(Part # A-RBP001-WW) — \$49.99

Stylus pack (Part # na) — \$na

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(Part # A-FMC002-WW) — \$249.99

### Miniature DRAM cards (2 Mb)

(Part # A-DMC001-WW) — \$129.99

### Miniature DRAM cards (4 Mb)

(Part # A-DMC002-WW) — \$189.99

### Connection cable

(Part # A-PCC001-WW) — \$39.99

### AC adapter

(Part # xA-ACA001-US) — \$34.95

## For more information, contact your local Philips dealer or:

Philips Electronics  
441 De Guigne Drive  
Sunnyvale, CA 94088, USA  
Phone: 408-523-2800  
Fax: 408-523-7800  
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# Interviews: HP and Casio share their views of the Handheld PC



Hewlett-Packard 320LX Palmtop PC

*Q: Can you elaborate on the advantages of Windows CE?*

*A:* There are three key advantages to Windows CE. First, since it operates the same as the Windows on your PC, there is very little to learn. You know how to use it already. Second, the included applications are extensions of what you already use on your PC. You do not have to change formats to share information. And finally, Windows CE automatically synchronizes your appointments, phone book and task list with the PC. That means there is an automatic update of information. For example, if you have made changes to your appointment book on your desktop PC, the Windows CE unit will be instantly updated as soon as it is connected to the PC. There is not even a button to push to make it happen.

*Q: How important is PC Connectivity?*

*In these two interviews, HP's Kheng-Joo Khaw and Casio's Daryl Scott discuss their companies perspective on the development and future of the Handheld PC.*

*Interviews by Handheld PC Magazine Publisher Hal Goldstein*

## Interview With Hewlett-Packard's Kheng-Joo Khaw

*Q: Why did HP choose Windows CE as the operating system for a new handheld?*

*A:* The office desktop today is dominated by Microsoft Windows. One of the key strengths of the HP Palmtop PC is its ability to integrate into the office PC environment and share information. Windows CE is an excellent system, not only to share that information, but also to work with, since it looks and feels just like the PC on your desktop.

*Q: What details can you give us about the HP Windows CE machine?*

*A:* The most important detail is the display. While we support everything that Windows CE has to offer, the original display standard from

Microsoft (which will be used by all other Windows CE handheld manufacturers) was just not large enough to work with word processing, spreadsheet, e-mail or web-based information. We have exclusively designed a display that is one-third wider than all of the other Handheld PCs with Windows CE, so that you can work with PC information in the same format that you see on a full-sized PC.



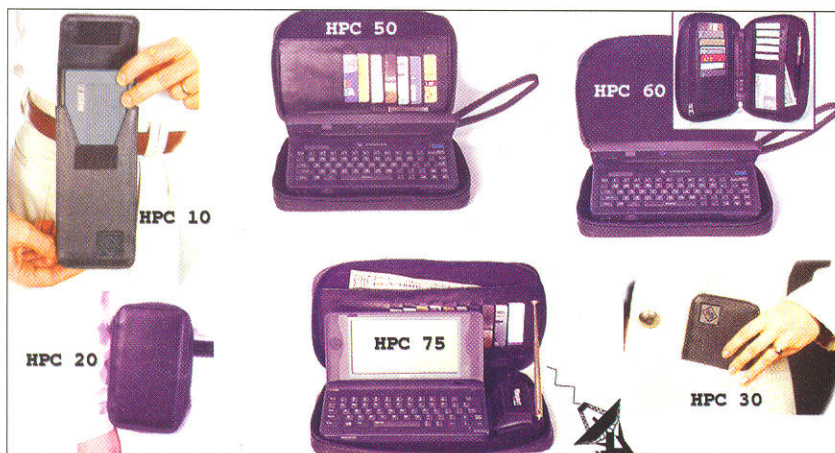
## ABOUT THE AUTHOR

Kheng-Joo Khaw is the General Manager, Asia Pacific Personal Computer Division, Hewlett-Packard Singapore where he is responsible for the designing, manufacturing and marketing of HP handheld products ranging from high-end calculators to the HP Palmtop PCs. Mr. Khaw received his Bachelors degree in Computer Engineering at Oregon State University and his Masters degree in Business Administration at Santa Clara University, California.

Mr. Khaw joined HP in 1973, working in Calculator Operations, Singapore, first as Production Supervisor and then as Materials Engineer. Since then he has worked at a variety of managerial positions, including, R&D Project Manager, Regional Manager, and Manufacturing Manager.



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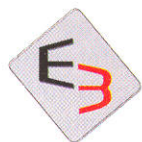
and protect their H/PC.

**HPC 50 \$54.95** - The most complete executive solution for your Handheld PC. It has slots for credit/PC cards, holds 2 AA batteries and a Mont Blanc-size pen.

**HPC 60 \$69.95** - Well versed in the necessities of a frequent traveler. This 2-compartment case is just what you need when you need it all. Conveniently laid out. Holds 2 AA batteries, many credit cards, passport, money, Mont Blanc-size pen and a clear window for your personal ID.

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Palmtop PC is the only one in the Windows CE market. It makes entry of phone numbers and addresses much easier than it would be with only the top row keys.

*Q: Microsoft was unsuccessful with WinPad, its first attempt at a Windows-like Palmtop operating system. Did HP work closely with Microsoft in the development of Windows CE? Can you discuss some of HP's input and requirements?*

*A: HP and Microsoft have a very close relationship in the development of technologies used in Handheld PCs. Our experience over the past five years as a pioneer and leader in the Palmtop PC market has been a significant influence on the development of Windows CE. In addition, we are delivering the wide display that is essential to make these products true PC companions.*

*Q: What should we call these things — PDAs, organizers, handheld computers, or what?*

*A: We call them "Palmtop PCs." They fit in your hand conveniently and deliver all the best aspects of the PC.*

*Q: Won't the earlier HP palmtops and Windows CE Palmtop PC compete with each other?*

*A: Windows CE-based Palmtop PCs work very well as companions to Windows 95 PCs. They do not connect to PCs with Windows 3.1 or MS-DOS. On the other hand, the 200LX Palmtop works with Windows 3.1 and MS-DOS. HP is the only company that can address the range of operating systems running on PCs today.*

*Q: I understand that HP wants*

*A: Business people today use their PCs as the central information source for their operations. They would like to be able to walk away from their desk with this information. PC connectivity is essential to enable this. Although the new Windows CE Palmtop PC is a wonderful device by itself, it really shines when it is able to carry PC information anywhere and keep it up-to-date.*

*Q: A lot of HP 200LX users are concerned with the lack of a numeric keypad in the new Windows CE devices.*

*What made you choose a wider alpha keyboard and embedded numeric keypad rather than stand-alone numeric keypad? Is there a chance that you will offer a model with a numeric keypad to satisfy your traditional engineering-base of customers?*

*A: While there are certainly customers who prefer having a numeric keypad, the vast majority desire the larger key spacing and key tops. This is true of the market in general, as well as with existing HP 200LX customers. The embedded numeric keypad in HP's new Windows CE*



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*Windows CE to become the standard operating system for handheld computers. Why?*

A: Standards are required for broad market acceptance of any technology. Without standards, people are nervous about making an investment in development or learning a system. With standards, you can count on your development and learning efforts paying off over a long period of time. The partnership between HP, with its leadership position in Palmtop PCs, and Microsoft, with its leadership posi-

tion in operating systems and applications, is a natural one for promoting standards to help the entire industry grow.

*Q: How committed is HP to handheld computing devices?*

A: The virtual office is an essential part of our future. As people become more mobile, convenient computing devices become more important. Handheld computing is a strategic area for HP, and we intend to continue being a leader in

delivering innovations that make it easier to compute on the go.

*Q: The whole category of handheld computers and PDAs has been slow in winning widespread recognition and acceptance in the marketplace. Why do you think this has happened?*

A: Contrary to popular perceptions, handheld computing is a significant business today. The public perception has been set by some well publicized failures. Within HP, we are a division devoted solely to handheld computing. Now that standards are being established across a broad range of players, the market will see even faster growth.

*Q: What will need to change so that not just visionaries, but mainstream users will adopt the Palmtop PC?*

A: We have been getting our direction from visionaries for years now. We also receive a great deal of input from mainstream users. Users like Coca-Cola's delivery personnel in Brazil, insurance sellers in many countries, and even the people who run the Dutch railway system. While in many cases a visionary was involved in initiating projects like these, the users are mainstream people. Now that standards are coming to the market it will be even easier for mainstream users to take advantage of the technology without needing visionaries to lead the way. Visionaries will still have the leadership roles in how far Palmtop PCs get stretched to their full potential, such as with wireless communications.

*Q: It's been six years since the HP 95LX was introduced. Can you describe your vision of handheld computing five years from now?*

A: Palmtop PCs will gain more capabilities of the desktop PC.



The HP 95LX was a dramatic breakthrough, but when it ran DOS, at that time, the world was already moving toward Windows. Now, we are delivering Windows CE only about one year after Windows 95 came to the market. In addition, Windows CE is actually a multi-threader operating system, as is the present Windows NT. Use your imagination about what is built into the typical PC today and you can envision what may be possible in the Palmtop PCs of five years from now.

*Q: I have always been impressed by how approachable you are and by your desire to get as much good input as possible. You are quick to accept invitations to come to HP palmtop user events. You once mentioned to me you spent a whole day just watching consumers in a retail setting where HP palmtop products were sold. What are some of the things you have learned from watching and talking to customers?*

**A:** Our customers want products that get the job done. The latest technology is not the important factor. We focus on the latest technology only when it helps get the job done, not just for "gee whiz" impact. That's probably the most important thing we have learned from our customers. In addition, customers who use our products know a lot more about the potential uses than we could ever imagine on our own.

*Q: How can customers send you their ideas and concerns?*

**A:** Customers can always talk to me at various conferences and trade shows. I attend several every year. In addition, we read the HP Hand forum on CompuServe and have a feedback area on our Web site at: <http://www.hp.com/handheld/>. Please do send your comments and ideas.



Cassiopeia handheld PC linked to a Casio QV-10a digital camera. When combined with the CASIO QV-LINK software, the Cassiopeia can be used to control the display of the presentation images generated by the camera.

## Interview with Daryl Scott, Product Manager for the Casio Cassiopeia

*Q: Yours was the first Handheld PC to hit the market. What feedback have you received from Cassiopeia users? What do they like about the Cassiopeia? What improvements do they want to see in the next version? How do they use their Cassiopeia? How do you see yourselves competing with other H/PCs as they are introduced?*

**A:** We have found that the basic concept of a powerful Handheld PC with an industry-standard user interface, strong Microsoft Windows connectivity with Pocket Word, Pocket Excel and PIM data, plus the open software development environment, has been very well received by consumers. Our users particularly like the long battery

life, light weight and the complete range of both Microsoft and additional unique Casio software that we include with the Cassiopeia. We have also listened carefully to the feedback from our initial customers, and will continue to develop new versions with improved screen technology, keyboards and other basic design features. Casio sees Windows CE as an important foundation for a variety of products, and you can expect to see many interesting new devices from Casio in the future, based on this operating system.

*Q: Casio worked closely with Microsoft on the development of Windows CE and the Handheld PC. What were the most significant contributions Casio made to the project in terms of hardware and software features, etc.?*

**A:** Casio was one of the first



## ABOUT THE AUTHOR

Daryl Scott is responsible for software development and marketing activities for CASIO's Handheld PC product line. He manages the Mobile Systems Group at CASIO that develops original software applications and partners with outside developers to support the CASSIOPEIA. In addition, he is involved in a variety of marketing and PR activities in support of the Windows CE products at CASIO. Prior to CASIO, he was the founder and President of a software development company that marketed a number of successful software products for the handheld/PDA market. He has also led software development projects for both the Macintosh and Windows platforms at several major software companies for over 15 years. He holds a B.A. degree in Marketing from the University of South Florida, and an M.B.A. from Baruch College in New York City.



OEMs to join Microsoft in the earliest stages of development of the Handheld PC concept. Casio's long experience in LCD display technology, power management, LSI design and consumer electronics manufacturing and distribution was brought together with Microsoft's expertise in operating system software design to make the Handheld PC a reality. As a result of Casio's early development efforts, we were also able to be the first OEM to ship a Windows CE Handheld PC.

*Q: Casio has a strong tradition of developing its own handheld organizers. Why go with the crowd and be one of a number of similar handhelds?*

A: Casio has a long history of providing a wide range of innovative solutions in consumer electronics. The current line of Casio electronic organizers and digital diaries continue to have a strong appeal to a certain segment of the consumers. However, the Cassiopeia fills a different need among those who require the more extensive desktop connectivity and the software flexibility provided by the open architecture of Windows CE.

*Q: How is the Cassiopeia different from the other handheld PCs?*

A: The Cassiopeia offers a combination of unique features that make it stand out among the Windows CE devices. These include important hardware features such as a second serial port for connecting specialized devices such as the Casio QV digital cameras, etc. We also bundle the widest range of additional software for faxing, paging, e-mail, and more. And, importantly, Casio has used its consumer electronics design and manufacturing expertise to deliver all of this at an under-\$500 price point.

*Q: Describe the typical Cassiopeia user.*

A: The typical Cassiopeia owner is a business-oriented Windows 95/NT user who spends a fair amount of time away from his or her desk. This may be either due to out-of-town travel, or just at meetings around the corporate site. We have also found a strong demand among a variety of vertical markets for the kind of portable power that the Cassiopeia provides.

*Q: We understand that Microsoft is working on a new release of the Windows CE operation system. Will there be an upgrade path for existing Cassiopeia users? Could you describe that path.*

A: As you know, software applications, including operating systems, are never "done," but rather are continually evolving and improving. Casio has planned for this by designing an easily upgradable ROM in the Cassiopeia so that a user can always take advantage of these improvements in the operating system and applications software, as they become available.

*Q: What is the future of Windows CE handhelds at Casio?*

A: Casio views Windows CE as an important part of a variety of future products. Our Handheld PC line will continue to expand, and Casio is looking forward to continuing its lead in the Windows CE market.

*Q: What do you like most about the Cassiopeia / Windows CE? What do you want to see changed/improved in the next version?*

A: What I like the most is that we have for the first time delivered an inexpensive yet fully functional handheld PC companion product with enough power and flexibility to satisfy the needs of a large num-

ber of potential users. As for future changes, we are interested in further improving the user experience by providing more powerful software applications, and continuing to innovate in the hardware design by introducing improvements in screen display quality, lengthened battery life, enhanced keyboard usability, faster processing speed, more flexible connectivity options, etc.

*Q: I was impressed by your Cassiopeia/QV100/TV screen demo. Could you describe it, its features, and give examples of how it might be used? How do existing Cassiopeia users get the software?*

A: As I mentioned, digital cameras are an important part of the Casio family of electronics products. One of the interesting features of our camera line is the ability to use the camera video-out capability to display color images on a large TV monitor. When combined with the Casio QV-LINK software, the Cassiopeia can be used to control the display of the presentation images generated by the camera. And, while the images are being displayed on the TV monitor, presenter notes can also be displayed on the Handheld PC. In addition, the QV-LINK software can be used to upload and download camera images, enter picture comments, etc. The QV-LINK software currently comes bundled free exclusively with the Cassiopeia.

*Q: How can customers send you their ideas and concerns?*

A: The easiest way to pass along feedback is to go to our Cassiopeia Website ([www.casiohpc.com](http://www.casiohpc.com)) and send feedback to the Webmaster. These messages are reviewed and then forwarded to the appropriate groups within Casio.

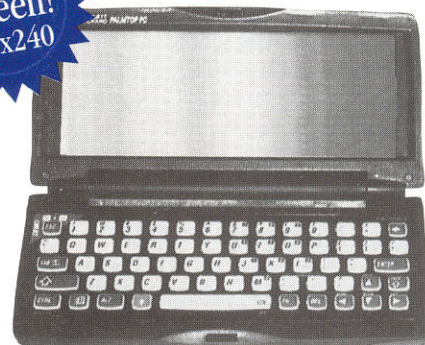


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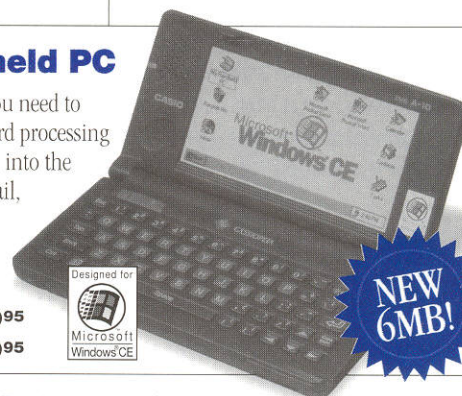
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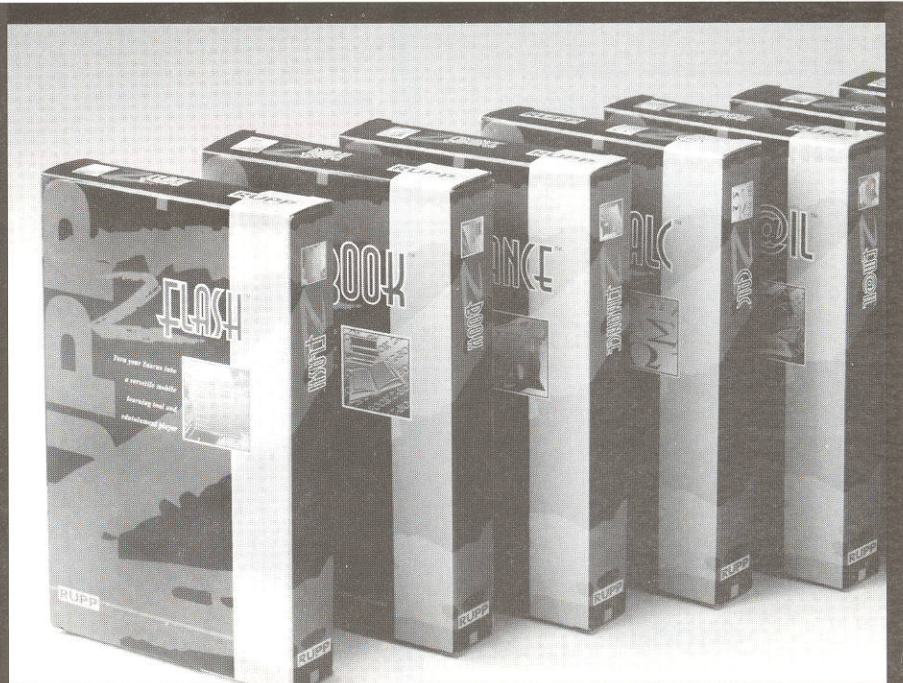
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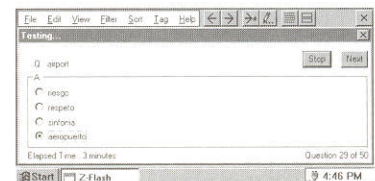


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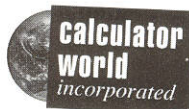
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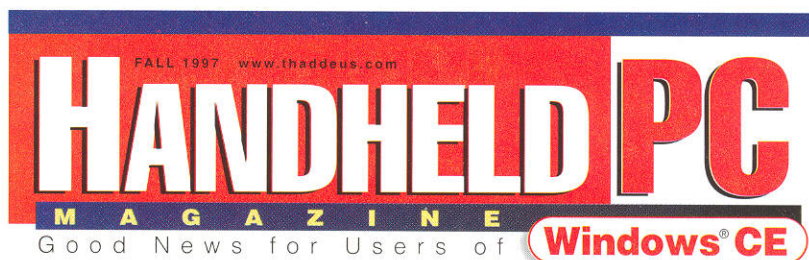
The package includes converters, timers, mini-notes, and other tools to simplify common tasks. These add-ons were written from scratch for Windows CE and work as a natural extension to the base software provided with Handheld PC's.

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[Please note: The Staff of Handheld PC  
Magazine cannot provide technical support.  
See listings of forums and newsgroups in  
What's On-Line p. 61, for advice and techni-  
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# A Fast Look

## HOT TOPICS AT A GLANCE

### new products

#### New entry options—Let your H/PC capture your handwriting or voice commands

Several new products translate your voice or scribble into something computable on your H/PC. If you're not a fan of tiny keyboards, just jot your thoughts using *Jot*, *Calligrapher*, *QuickNotes*, *PenScript*, *PocketPad*, *InScribe*, or *smARTwriter CE PLUS*. Your writing will either be recognized or saved graphically.

For hands-free voice entry, try *smARTcontact*, *smARTcommand* for CE, or *Voice Memo*, if you have an H/PC with a microphone.

For details on these and other hot products, see our New Products section, pages 18-32.

### quick tip

#### Speed up H/PC to desktop synchronization

There are several things you can do to speed up synchronization between your desktop and H/PC. First off, for most desktops you can increase the data transfer rate almost 10 times from the default 19,200 baud to 115,200 baud. Secondly, when you synchronize your calendar you can transfer a few weeks into the future rather than the years of future holidays and repeating appointments.

For the details on the first tip, see *Quick Tips and Handheld PC Tricks*, beginning on page 12.

### wisdom tip

#### Recurring appointments help show you care

Can a computer increase someone's compassion? What does a machine know of anyone else's concerns? Well, as a Handheld PC computer user, you can find ways to let others know you care. Use *Calendar* to schedule recurring weekend time for father-son activities; set a reminder to call your 93-year-old grandmother every two weeks; set wakeup reminders a couple times in

the night to check on an ill child; enter recurring appointments for anniversaries and family birthdays. You might set them up as yearly recurring appointments one week in advance of the actual date so you have time to buy gifts. You might double or triple enter really important appointments so the alarm goes off more than once.

See page 41 for the continuation of this tip plus more ideas for applying personal effectiveness concepts to your Handheld PC.

### the web

On MobileSoft's Website [www.mobilesoft.com](http://www.mobilesoft.com) you can order and download key third-party products for Handheld PCs. For details see the sidebar on page 17 or visit [www.mobilesoft.com](http://www.mobilesoft.com). Another company, MobileScape, recently opened its Ultimate Web Site for Handheld Computing, for online ordering at [www.mobilescape.com](http://www.mobilescape.com)

See What's Online, page 61, for major H/PC-related Websites worth visiting.

application title	developer name	cost
Conversion		
EncloseIt	LandWare, Inc.	\$39.95
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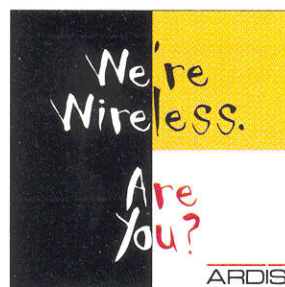
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\*\* Based on 24 monthly payments. Customer owns the modem card at the end of term. Other terms available. Available while supplies last. Cannot be used in conjunction with any other ARDIS offer.





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